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INDONESIA

Employment and Income Distribution in Indonesia

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INDONESIA

Employment and Income Distribution in Indonesia

This inquiry into employment and income distribution aspects of Indonesian development was undertaken as a joint effort by the Employment and Rural Development Division and the Population and Human Resources Division in collaboration with the East Asia and Pacific Regional Office and the Bank Resident Staff in Indonesia. It is part of the larger program of work carried out in the Bank for the 1979 Basic Economic Report. The report was prepared by members of a mission that spent four weeks, January 9–February 3, 1978, in Indonesia. The mission members and their primary areas of responsibility were:

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A draft of the report was discussed with Indonesian officials in July 1978. In addition, valuable comments on the draft were received from a number of researchers in Indonesian universities and research organizations.

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CURRENCY EQUIVALENTS

Before November 15, 1978

US\$1.00	=	Rp 415
Rp 1.00	=	US\$0.0024
Rp 1 million	=	US\$2,410

After November 15, 1978

US\$1.00	=	Rp 625
Rp 1.00	=	US\$0.0016
Rp 1 million	=	US\$1,600

FISCAL YEAR

Government	-	April 1 to March 31
Bank Indonesia	-	April 1 to March 31
State Banks	-	January 1 to December 31

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EMPLOYMENT AND INCOME DISTRIBUTION IN INDONESIA

SUMMARY AND CONCLUSIONS

Introduction

The purpose of this report is (i) to examine demographic, employment, wage and income trends in relation to past developments; (ii) to analyze the structure and functioning of rural and urban labor markets in order to assess their effectiveness in allocating and reallocating labor and the consequent implications for the level of labor utilization, the structure of relative wages, and the distribution of labor incomes; and (iii) to provide a tentative formulation of the employment and income policy issues of importance in addressing the more comprehensive questions of Indonesia's longer term development strategy.

The report provides no more than a preliminary reconnaissance of the employment and distributive aspects of Indonesian developments. The complexity of the issues, the regional diversity of the Indonesian economy and the scarcity of reliable data in crucial areas make definitive analyses impossible. Moreover, important sources of information were available only in preliminary and incomplete form at the time of writing the initial drafts. More thorough analyses than it has been possible to provide in this report of the final tabulations of these data may require significant revisions in some of the statistical estimates presented.

In order to present as comprehensive a treatment as possible, the report draws upon a wide variety of empirical studies and inquiries, differing in scope, methodology, and reliability. Moreover, all too frequently the results of these studies appear to support inferences in direct conflict with one another. While judgments have been made about the weight of the evidence with respect to particular issues, the report does not seek to resolve every question; a major objective has been the identification of issues requiring further investigation and analysis before definitive conclusions can be reached.

Trends in Population, Labor Force and Employment: Growth and Composition

The acceleration in the growth of population observed during the 60's appears to have ended with an estimated annual rate of increase of 2.0% during the first half of the 70's which is slightly less than the 2.1% recorded during the preceding decade. On Java the rate of population growth appears to have slowed significantly, despite signs of reduced net migration to other islands. The pace of urbanization also has slowed in recent years.

There are indications that net migration from Java to Outside Java is relatively low and may have declined since the latter half of the 60's. Net rural/urban migration also seems to be moderate. A very crude

calculation of rural/urban migration, based on the observed rates of rural and urban growth and assuming similar natural rates of growth in the two areas, suggests an annual net migration rate of rural households on the order of only one or two per thousand. But such a figure probably underestimates the volume of rural/urban movement.

However, a variety of evidence would seem to indicate a substantial amount of geographic mobility on the part of the Indonesian population and work force. These movements are quite varied in character and difficult to quantify. Circular and temporary migration of various sorts ranging from daily or weekly commuting to considerably longer cycles appear to be common.

The higher rates of population increase of the earlier years have resulted in a higher proportion of the population in the working age groups. Combined with an upward movement in labor force participation rates among females, this has led to an expansion of the labor force in the range of 3 to 5% a year between 1971 and 1976. Since during the same period employment expanded at almost the same rate, the overall rate of measured unemployment has remained essentially unchanged at slightly over 2%. But the figures available show that, even under a very restrictive definition of the unemployed, unemployment in urban areas is at significantly higher levels (over 6% in 1976). By and large open unemployment continues to be concentrated among the younger age groups in urban areas.

The large seasonal movements in and out of the labor force associated with seasonal fluctuations in employment opportunities reveal a high degree of responsiveness of the labor supply to short-period changes in the demand for labor. Most of this seasonal movement, however, seems to be contributed by younger workers and women. Despite the continuing increases in the number of employed in agriculture, employment in non-agricultural activities grew some 5-7% a year (7-9% a year in rural areas). By 1976 the percentage of total employed in agriculture had dropped to about 62% while non-agricultural sectors in rural areas accounted for roughly half of the total increment in employment between 1971 and 1976.

The observed increases in labor force participation rates and in non-agricultural activities in rural areas do not, in themselves, necessarily imply any general and widespread improvement in the employment situation. The possibility exists that these changes may have resulted from efforts by rural households, faced with deteriorating economic opportunities, to maintain their incomes through increased participation by household members in a broader spectrum of low-paying activities. Such an unfavorable interpretation, however, even though it may have some validity for some groups in some areas, is inconsistent with existing evidence showing substantial increases in real per capita consumption levels and no discernible decline in the trend of real wages for unskilled labor. On balance, therefore, the growth in overall employment levels must be interpreted as evidence of the widespread and substantial impact on the labor market of the rapid increases in output and investment in the first half of the decade. Similarly, the rise in labor force participation

rates is most reasonably interpreted as a response to the expansion of employment opportunities and a mechanism through which the work force has been able to participate in the rising levels of national income. Despite this generally favorable interpretation of employment developments over the period 1971-1976, certain features of those developments appear to be unique to that period and point to much more severe problems in the future.

Rural Employment and Labor Markets

Since 1961, there seems to have been a steady increase in the absolute number of people employed at least part of the time in agriculture. Census results for 1961 and 1971, and the results of the Intercensal and National Labor Force Surveys in 1976 provide the main basis for these judgments, but extreme care is needed in interpreting the figures because of differing definitions of employment.

From the census data, it is difficult to discern any systematic differences between the employment trends in Java and Outside Java. While the rate of population growth in Java has been considerably less than in the other islands, the rates of labor force and employment growth in each have differed only marginally. The patterns of seasonal variations in employment appear to be similar in each area, though the variation is less pronounced outside Java, and the sources of additional seasonal labor are by and large similar.

Conflicting evidence exists regarding the seasonal supply of labor to meet the needs of the peak agricultural season. The census data suggest that much of the seasonal change is met by drawing unpaid family labor into the labor force, largely women. On the other hand there is a range of evidence indicating that the hiring of labor is extensive during the busy months, and that most seasonal needs are met by casual wage laborers.

Too little is known about the migratory patterns of the labor force but the indications are that substantial number of laborers move back and forth between city and countryside according to the season, seeking whatever work is available.

Within the agricultural sector, a number of important changes have been occurring in recent years which would be expected to affect the level and pattern of demand for labor. More land has been brought under cultivation, especially Outside Java, and more land has been brought under irrigation both inside and outside Java; new varieties of rice have been developed suitable for double cropping; and more intensive cultivation practices have been introduced involving the use of fertilizers and pesticides. All of these factors would be expected to increase the demand for labor. But they have been offset to some extent by greater use of labor-saving techniques in certain activities, such as harvesting, weeding, rice pounding, and more recently, land preparation and by institutional changes within the agricultural sector, particularly in harvesting practices and land ownership, which have tended to displace labor.

The process of institutional and technical change within agriculture has also affected the composition of the agricultural work force. There has been a discernible increase in the number of landless or almost landless laborers, and a growing dependence of rural households on participation in non-agricultural activities or labor markets to provide additional sources of income. Some 45% of rural households derive at least part of their income from activities outside of agriculture with over 25% wholly dependent on non-agricultural incomes.

From the distribution of primary sector of employment, non-agricultural workers appear to be heavily concentrated in the trade and service sectors which together account for almost two-thirds of rural employment outside agriculture. But manufacturing contributes a substantial fraction, over one quarter, much of which must be in extremely small enterprises, the products and characteristics of which are largely unknown.

The developments in the agricultural sector clearly point to a relative decline in demand for agricultural labor over time, even though an increasing number of people are participating in the sector. The sketchy information on wage levels in rural areas does not however indicate a declining trend in real wages. The general impression conveyed by the fragments of information on wage levels and trends is one of the diverse and freely functioning labor markets in which wages are responsive to underlying changes in the demand and supply of labor. It appears that despite the relative decline in demand for labor in agriculture and the displacements associated with structural changes in agricultural technology and institutions, the demand for labor in non-agricultural activities expanded sufficiently to maintain a fairly stable level of real wages. Nevertheless, certain groups less well placed to adapt to the shifting demands for labor may have experienced absolute declines in labor income and economic welfare.

Employment and Wages in Urban Labor Markets

Urban employment appears to have grown at a rate slightly under that of rural employment between 1971 and 1976. Despite this fairly rapid rate of employment growth--substantially above the 2.6% growth rate of the urban population during that period--it was somewhat slower than the estimated growth in the labor force so that measured open unemployment in urban areas increased from about 5 to almost 6.5%. The decline or stagnation in the share of manufacturing in urban employment during a period when the proportion of employed in manufacturing in rural areas was increasing may reflect a "spillover" of manufacturing activities into areas immediately adjacent to the cities.

So far as can be determined from the available figures, there has been little change in the sectoral pattern of urban employment since 1961, even though the number of employed in urban areas has grown by about two-thirds. The seasonal differences in the sectoral distribution of employment between March and September 1976 suggest that the trade and manufacturing sectors are the principal net sources of seasonal workers to agriculture.

Despite the importance of own account workers and unpaid family members in urban employment, employees working for wages or salaries clearly predominate in urban labor markets with over 60% of those employed in non-agricultural sectors in March 1976 classified as employees.

The absence of comprehensive and reliable data on urban wages make judgments about the structure and trends especially hazardous. Scattered information, however, seems to be consistent with the following observations. Average levels of urban wages of unskilled or less skilled workers are low. Although there is considerable dispersion of observed wages, average differentials in unskilled wage levels between sectors and between the larger scale enterprises and the extremely small firms of the informal sector do not appear extremely wide. There is little evidence that institutional differentiation between wage levels of these sectors has been created by wage laws, trade union activity or labor practices of government and government-controlled enterprises. Average wage rates of unskilled and less skilled workers seem to be only slightly higher in urban areas than in rural areas of the same region. Inter-regional wage differentials for unskilled and less skilled workers appear to be larger than intra-regional wage differentials. Finally, there seems to be little evidence of any pronounced upward movement in real wages in recent years and much of the limited data available suggest a stagnating trend in real wages.

Consumption Levels, Poverty and Income Distribution

Between 1970 and 1976 consumption expenditure per capita went up in real terms in both urban and rural areas of Java and Outside Java. The growth rates were somewhat higher in urban and rural Java than in the corresponding areas of Outside Java, but the urban/rural differential widened in both Java and Outside Java as a result of a considerably faster growth in the urban areas. There are great variations in the incidence or proportion of poor people across provinces. Because of its high incidence of poor people and its large share of the total population, Java contains the overwhelming majority, around 70%, of the poor population of Indonesia.

The growth in average per capita consumption expenditure appears to have been accompanied by a reduction in both the proportion and absolute numbers of the population at extremely low levels of per capita consumption. This observed rise in consumption levels and the decline in poverty, substantial as it has been, still leaves an immense problem of poverty in Indonesia. From the data on the distribution of households by levels of per capita consumption, it is estimated that in 1976 almost 40% of the total population of Indonesia were subsisting on less than Rp 3,000 per month. Moreover, many observers have drawn attention to the plight of different subgroups of the population who appear not only to have been left out of the growth process altogether, but also to have been forced into a less favorable position relative to those who have made economic gains.

While the evidence from aggregative data, showing that in absolute terms the benefits of growth have been shared by even the lowest income groups of the population, is an encouraging aspect of recent Indonesian economic development, it hardly constitutes a complete picture of the poverty problems confronting the country. Other aspects are not so encouraging.

Even without direct statistical evidence on trends in income distribution, there are strong indications of a marked increase in relative income inequality. The differential in per capita consumption between the urban and rural populations has been widening in both Java and Outside Java. Since the rural population started from an already inferior position relative to the urban population, such a deterioration is a cause for concern. The per capita consumption data also point to a large increase in the degree of inequality within urban areas and a decrease within rural areas. Taking into account also the widening urban-rural disparity, this suggests a significant increase in overall consumption inequality in Indonesia between 1970 and 1976 that very likely reflects an even larger increase in income inequality.

In addition, other evidence is suggestive of growing inequality in the distribution of income. From the absence of any discernible upward movement in real wage levels during a period of rapid growth in average productivity and production, it may be inferred that profits and property incomes were growing at an even faster rate, to the benefit of those generally concentrated at the upper ranges of the income distribution. There is also a variety of studies showing that the benefits of economic change, at least in the first instance, tend to be concentrated on those groups already in a relatively superior economic position and therefore better placed to take advantage of new opportunities. Because the poor operate at the margin of subsistence, it is not surprising to find that they place high priority on current compared to future income and have a high aversion to risk; they are reluctant to take action which subjects them to the risk of becoming worse off than they are to begin with.

It would not be difficult to multiply examples of the vulnerability of the poor to adverse consequences from economic change. For millions of the poor living on the margin of subsistence, any disruption, even if slight and temporary, in their means of securing a livelihood can have disastrous consequences for those involved. And the process of economic growth inevitably entails such disruptions which many will find difficult or impossible to weather without severe cost and suffering. These personal costs and sacrifices suffered by particular low-income groups cannot be captured in aggregative or average measures of increases in consumption or living standards. If the benefits of economic growth are to be shared more equitably, policies must be designed to address the particular situations confronting specific groups in order to offset some of the deleterious effects of changing economic circumstances, and to ease the burdens of adjustment to new and more remunerative activities.

Employment Policy Issues in Indonesian Development

The complexity and diversity of Indonesian labor markets, the conflicting interpretations that can be placed on developments during the past 5-10 years and the unavailability of reliable statistical data in crucial areas make it certain that no simple or definitive answers can be expected to questions about the specific directions employment policy should take and what policy instruments are available or might be fashioned to meet the challenges posed by employment and poverty problems in Indonesia. Moreover, employment policy in the broad sense cannot be separated from other aspects of economic development policy; the levels and patterns of employment and incomes are bound to be heavily influenced by policy actions in other areas.

(i) Prospects for Growth in Aggregate Labor Supply and Demand

Despite the evidence of deceleration in the rate of population growth, it will be some years before a corresponding decline can be expected in the growth of the labor force. Unless there is a sharp reversal in the recent trend toward higher labor force participation rates, the labor force can be expected to increase by 1.5-1.7 million annually over the next 20 years. From these estimates, the problem Indonesia faces of providing productive employment for growing numbers of workers will be roughly of the same order of magnitude in absolute terms over the next 10-20 years as in the last decade and the most acute problems of growing labor supply pressure on densely populated Java will be eased only slightly by the relatively slower growth in the Javanese population and labor force.

While the experience of the last few years is encouraging evidence of the capacity of the Indonesian economy to absorb increases in labor supply of this order of magnitude, that experience cannot be simply extrapolated to a sanguine view of the future. The substantial increases in employment, the rise in real consumption levels, and the apparent decline in the number of households at extremely low levels of per capita consumption that have taken place since 1971 are, it seems clear, almost entirely the result of the responsive adaptations of the work force to rising employment opportunities associated with accelerated growth in investment, output and incomes. It is not so clear that either the pace or pattern of development that produced these relatively favorable aggregative results can be maintained or that continuation of the past patterns of development will not lead to difficulties in reaching higher levels of employment and worker incomes.

(ii) Employment Aspects of Agricultural Development Policy

The rapid rise in agricultural output and incomes during the years 1971-1976 was a singularly important influence on the employment situation in that period. The possibly accelerating decline in the relative importance of agriculture as a source of additional demand for labor, the prospects for a higher rate of labor displacement in agricultural operations, and shifts in the locational pattern of the demand for agricultural labor all point to even heavier burdens of adjustment on low income rural workers in the future than they have been faced with in the immediate past.

The demand for labor generated by the increased incomes earned in agriculture have enabled an increasing proportion of rural workers to find sources of income and employment in non-agricultural activities. While the rapid expansion of extremely small-scale, local activities observed in manufacturing and service sectors of rural areas may have prevented any declining trend in rural wage levels it has not been sufficient to produce a rate of rural income growth equal to that in urban areas. The pressure of labor supply at the unskilled levels appear to have kept urban unskilled wages from rising as well. The resulting increases in disparities between rural and urban income levels and, within urban areas, between the income of lesser skilled workers and those of other urban groups will gain in importance and, perhaps, accelerate as agriculture becomes relatively less important in the economy and the future sources of employment and income growth become more concentrated in non-agricultural sectors in and around urban centers.

All this underscores the need for agricultural development policies designed to broaden the participation of rural groups in the process of achieving higher levels of output and income with careful attention to the impact of agricultural growth on the structure of landholdings and tenure conditions and the avoidance of undesirable increases in the concentration of wealth and income in the agricultural sector. And it becomes increasingly important to avoid measures that directly or indirectly distort incentives toward too rapid an introduction of labor displacing techniques. In some cases, positive disincentives through tax or tariff policies may be justified to moderate the pace if not the directions of movement toward less labor demanding techniques.

Finally recognition of the growing importance of non-agricultural employment alternatives to the rural population (even though they may remain dependent on agriculture as a principal source of employment and income) strengthens the conclusions that agricultural development policies cannot be formulated in isolation from policies concerned with the growth of labor demand in non-agricultural sectors--that is the whole range of industrialization and regional development policies which lie at the center of the problem of Indonesian development strategy.

(iii) Industrialization, Regional Development and Employment

It is an obvious but nonetheless important fact that most employment in Indonesia has been and will presumably continue to be provided by private sector enterprises. It follows that it is those government actions directly and indirectly influencing the level and pattern of labor utilization by private employers that will be of greatest importance in determining future employment and earnings prospects. Employment considerations alone cannot, of course, dictate fundamental policy decisions affecting the division of investment between public and private sectors, the regional location of publicly financed infrastructure, the sectoral allocation of investment, or the balance between small and large enterprise. But the employment implications of such decisions are important elements that should shape those decisions.

For example, a distinctive feature of recent employment experience emphasized in the report is the apparent proliferation of extremely small enterprises in the manufacturing and service sectors particularly in rural areas. Employment growth in large- and medium-scale enterprises, has so far as can be determined, been low even though they have probably accounted for the major share of the increment in non-agricultural output in recent years. From the point of view of employment, an industrialization strategy which gave greater emphasis to more labor intensive light manufacturing industries would offer greater opportunities for avoiding the inefficiencies and inequities likely to result from a continuing trend toward a highly concentrated or "dualistic" industrial structure. In addition insofar as a less concentrated process of industrial development was conducive to greater dispersion in the location of industry it would reduce the direct and indirect costs of shifting labor to a few primary centers of economic growth.

Similarly, basic employment issues need to be confronted in major policy actions regarding regional development and the location of investment. Given the concentration of population and labor force on Java and a continuing or even accelerating relative decline in the demand for labor in Javanese agriculture the pace and patterns of the demand for labor in industry and other non-agricultural activities on Java will remain decisive determinants of future earnings and employment opportunities for the bulk of the Indonesian work force. Even if outmigration from Java rises substantially beyond historically observed levels, the core employment issues will continue to be dependent on the rate and structure of Javanese industrialization. And it is the whole range of government policies affecting this industrialization process--investment, trade, infrastructure, fiscal, monetary, wage and price policies--that will be crucial determinants of future levels of labor incomes and employment. However, the indications of slowing rates of population and labor force growth on Java suggest that, over the longer term, labor supply pressures may become relatively more acute Outside Java.

The changes imposed by the process of industrialization and particularly the growth and modernization of small- and medium-scale establishments a shift toward a less concentrated, more widely dispersed and less capital intensive path of industrial development would entail might well increase the vulnerability of many of the extremely small, more traditionally organized enterprises. The displacements of labor which are bound to result from the competition of more productive and more modern enterprises make it all the more important that the mechanisms for adjustment in both product and factor markets are able to operate effectively without distorted incentive structures or obstacles to the efficient use and reallocation of labor.

(iv) Labor Market Regulation and Wage Policies

If there is a general lesson for future economic policy to be derived from the resilience and effectiveness of relatively unconstrained labor markets in Indonesia have demonstrated in recent years, it is perhaps the importance in an economy like that of Indonesia of avoiding policy measures that introduce undesirable constraints into labor markets and limit workers' access to new employment opportunities or discourage employers from maximizing the economically efficient expansion of those opportunities. This

does not imply any renunciation of active employment policies in favor of exclusive reliance on completely unregulated market mechanisms. The judgment that Indonesian labor markets have functioned fairly effectively is not to say that they are perfectly competitive. Under conditions where labor supply pressures are high, where the lack of resources makes large numbers of the work force vulnerable to the adverse effects of economic change and unable to pursue new employment alternatives, there are bound to be numerous situations in which employers can exploit positions of economic power to the detriment to the workers. But measures directed to the protection of workers' interests through improvements in the structure and operation of labor markets are inherently difficult to formulate and implement effectively and these difficulties are compounded by the scarcity of information about the structure and operation of specific labor markets in Indonesia.

The Indonesian government has been justifiably cautious in its approach to national minimum wage legislation preferring to move in the direction of differentiated wage standards administered through regional wage councils and provincial governments. It is difficult for such a differentiated system to avoid introducing arbitrary elements into the structure of wage-employment relationships without much more extensive knowledge about the operation of labor markets than is now available. Under the circumstances, it would seem preferable to concentrate, in the first instance, on improving the factual foundation and administrative resources for government action and to limit that action to those specific situations where it can be firmly established that regulatory measures will in fact have desired beneficial effects on the employment and incomes of low income workers.

Underlying this approach to wage and labor market regulation is recognition of the administrative impossibility in prevailing circumstances of establishing any comprehensive and effective direct governmental control over the level and structure of wages. Wage policy in Indonesia necessarily must have a partial and indirect character and government policies that influence the general level and structure of labor supply and demand should be recognized as being of more decisive importance for wage and employment developments than direct labor market regulation.

(v) Public Investment Programs to Provide Employment

The principal public investment efforts in Indonesia in which the expansion of employment opportunities has been a major objective are the various more or less decentralized social and economic infrastructure programs grouped under the general label of INPRES programs and the program of transmigration of settlers from Java to newly developed areas in the other islands.

The INPRES programs have been by far the most important in their influence on the employment situation. It is impossible to quantify the economic impact of the myriad small projects which have been undertaken but there is no doubt that they have been an important factor in the rising demand for labor observed during the 70's especially in rural areas. Employment provided by the INPRES programs in construction activities and in the local production

of materials has been roughly estimated as reaching a level in 1976/77 of some 165 million man-days or about 6 days of employment per male member of the rural labor force. While the short-term employment offered under these programs has eased the problems involved in shifts from agricultural to non-agricultural activities which has been such a pronounced feature of recent employment developments, the improvements in the economic base and the extension of markets and transport must also have contributed to an increase in the quantity and range of additional longer-term employment opportunities available to the rural work force. The undoubted value of the INPRES programs as instruments for attaining a more decentralized and more widely dispersed development leaves open the question of their future role. Both the increased size of the programs and the difficulties of maintaining efficient use of the funds as the programs are extended add to the importance of evaluating their future role more in terms of the assets created than of the increased short-term employment they provide.

Unlike the INPRES programs, transmigration programs have had only minimal significance for the general employment situation so far. And in view of the organizational and institutional difficulties which are involved in increasing the number of families transmigrated each year to a level that would constitute a significant fraction of the annual increment in the labor force, it is apparent that employment expectations based on the transmigration program should be cautions for a number of years. Yet it is equally apparent that a well conceived program of transmigration could be a cost effective element of any long-term employment oriented development strategy. Perhaps the most important employment aspects of transmigration are not so much connected with the overall size of the programs for the time being, as with the selection of settlers and the impact of that selection on improving conditions in specific, localized areas in Java.

(vi) Training and Education

While little attention could be devoted in this report to problems concerned with the improvement in the levels of education and skills embodied in the work force, one implication that emerges from the analysis is the crucial importance of workers' education and training to future employment and growth prospects and therefore as an area for positive policy interventions by the government. The role of basic education in increasing workers' capabilities for adapting to changing circumstances for learning new techniques on and off the job justifies continuing emphasis on primary education. More complex and difficult problems arise, however, in fashioning policies for the development of specific skills. With the present structure of Indonesian manufacturing and service industries where most employment is in extremely small enterprises, it is probable that too little attention is given to improving the skills and productivity of workers on the job. For these reasons, and because of the critical importance of skill acquisition to the pace and efficiency of the industrializing process in Indonesia, the possibilities for government initiatives to provide additional incentives or resources for on-the-job training deserve serious and sustained consideration.

Concluding Remarks

There is too little information and too much uncertainty about underlying influences on labor supply and demand and the operation of labor markets to permit more than speculative conclusions about the future evolution of the structure of employment and labor incomes. Nevertheless, some tentative generalizations about prospective developments may be ventured. First of all, it is difficult to see for the near term future a pattern of development in the supply and demand for labor to justify any expectations of substantial and sustained increases in real wages for the unskilled. The growth in the working age population together with a perhaps accelerating decline in the relative demand for agricultural labor can be expected to maintain the substantial pressure of labor supply in markets for unskilled labor. Moreover, it is unlikely that increases in labor force participation rates of the magnitude that appear to have taken place in the early 70's will continue to serve as a major means for augmentation of household incomes. Therefore the extent to which lower income workers can look forward to sharing in the benefits of future economic growth will be very much dependent on the expansion in the demand for labor in somewhat more skilled occupations and the ability of workers to shift to these more productive activities. In other words, earnings prospects for the poorer groups in the population particularly outside agriculture are likely to be mainly determined by increases in the quality of employment opportunities to which they can aspire rather than by increases in the demand for completely unskilled labor and consequent increase in unskilled wage rates.

The experience of the past years has demonstrated the resourcefulness and initiative of the Indonesian workforce in responding positively to the opportunities for economic advancement in new and different lines of activity. That experience provides reasonable grounds for optimism that even with a fairly constant level of real wage rates substantial improvements in the incomes and earnings of a large proportion of the workforce can take place through development policies which emphasize the growth of better jobs rather than just more jobs at the lowest levels of productivity and pay. In the absence of detailed information on the occupational wage structure and the differential returns to skill and education, it is impossible to quantify the contribution such compositional shifts and upgrading of the labor force can be expected to make to the growth of incomes of lower income households. But it can be expected to be substantial if an overall economic growth rate of 6-7% a year can be maintained along with a growth in non-agricultural sectors at a substantially higher rates.

For rates of output growth of these magnitudes to be translated into increased earnings opportunities for workers in the lower skill categories, careful attention will need to be paid to the patterns of capital and labor use in the industrializing process. The more economic growth can be based upon the efficient development of less capital intensive and less skill intensive production and techniques the greater will be the spread of income increases to the working population in the form of enhanced earnings opportunities.

Precisely because modernization and productivity growth is likely to entail the introduction of technologies that are less labor intensive than traditional techniques and whose direct or indirect effects may be labor displacing, particular care is needed to avoid excessive capital intensity. This involves appropriate factor pricing policies (e.g. positive real interest rates, strictly enforced repayment of credit) and tariff policies that do not unduly favor capital good. It also implies that direct and indirect effects on employment merit explicit consideration in major policy decisions both to ensure the efficient utilization of capital and labor resources and to minimize the costs imposed on workers by labor displacement.

These employment questions are relevant to decisions across the whole range of government policy actions--to public investment decisions (Is it possible to reduce the concentration on capital intensive projects in favor of more labor intensive investments?); to regulations affecting private sector activities (Is banning becaks, for example, truly necessary for proper urban transport? Are there no intermediate alternative policies?); to the definition of required public facilities and standards (can minor differences in the design of public buildings and roads lead to greater and more efficient use of labor?). But it is also apparent that employment considerations will only rarely be exclusive factors determining particular policy decisions or the formulation of general policies. The variety of interrelationships involved requires a careful examination and balancing of employment aspects along with other objectives. What is needed are improved mechanisms whereby all government actions come under scrutiny in order to bring employment considerations to bear on all of them.

EMPLOYMENT AND INCOME DISTRIBUTION IN INDONESIA

INTRODUCTION

1. Over the past decade the Indonesian economy has maintained a fairly rapid rate of growth in aggregative terms. The annual increase in gross domestic product has averaged between 7 and 8% or about 5% per capita. The share of gross domestic product devoted to capital formation has more than doubled--from less than 10% in the late 60's to over 20% in recent years. Gratifying as this performance may be, there remain questions about how the costs and benefits of Indonesia growth have been distributed, about the accompanying changes in the magnitude and structure of employment opportunities, and about the challenges these aspects of the development process pose for the future pattern of economic growth.

2. The purpose of this report is (i) to examine demographic, employment, wage and income trends in relation to past developments; (ii) to analyze the structure and functioning of rural and urban labor markets in order to assess their effectiveness in allocating and reallocating labor and the consequent implications for the level of labor utilization, the structure of relative wages, and the distribution of labor incomes; and (iii) to provide a tentative formulation of the employment and income policy issues of importance in addressing the more comprehensive questions of Indonesia's longer term development strategy. The report is organized into five parts. In Part I, the more aggregate data on population, labor force, employment, and unemployment is analyzed to provide an overall perspective on recent developments and near future prospects. This is followed in Parts II and III with more intensive analysis of employment and income determinants in the rural and urban sectors respectively using the results of more micro studies into the changing technological and institutional structures and their implications for the supply and demand for labor. Part IV then shifts to an examination of the available evidence on changes in the distribution of consumption expenditures, in the level and incidence of poverty and in the characteristics of the lowest income groups. Finally, in Part V an attempt is made to explore both existing policy initiatives designed to reduce the burdens of poverty on particular groups through a more equitable distribution of earnings opportunities and to provide a tentative formulation of some of the employment and income policy alternatives that need to be considered in the framing of future development policy.

3. It is important to emphasize that this report can aspire to no more than a preliminary reconnaissance of the employment and distributive aspects of Indonesian development. The complexity of the issues, the regional diversity of the Indonesian economy and the scarcity of reliable data in crucial areas makes definitive analyses impossible. Moreover, there has not been sufficient time to analyze fully important recent sources of information--notably from the 1976 Intercensal Population Survey (SUPAS) and the National Labor Force Survey (SAKERNAS). Complete analyses of these data may require significant revisions in some of the statistical conclusions in the report. But, it is believed that the broad outline of labor force, employment consumption and income trends will not require substantial alteration.

4. In order to present as comprehensive a treatment as possible, the report draws upon a wide variety of empirical studies and inquiries, differing in scope, methodology, and reliability. Moreover, all too frequently the results of these studies appear to support inferences in direct conflict with one another. While we have not refrained from recording judgments about the weight of the evidence with respect to particular issues, we have not attempted to resolve every question. Indeed, a major objective has been the identification of issues requiring further investigation and analysis before definitive conclusion can be reached.

I. TRENDS IN POPULATION, LABOR FORCE AND EMPLOYMENT:
GROWTH AND COMPOSITION

Population Growth

The most recent estimate of Indonesia's population--from the March 1976 Intercensal Population Survey--put the total population at 130 million of which 82 million, or about 63%, were living on Java (including Madura). While the population density of about 70 per square kilometer for the country as a whole is less than the average for Asia, the concentration of population is reflected in a population density on Java of over 600 persons per square kilometer--almost double that of the Netherlands or Belgium and significantly above the population density of Bangladesh. This fact alone is sufficient to make the employment situation on Java a crucial consideration in Indonesian development.

During the intercensal decade 1961-1971 the annual rate of population growth had accelerated to about 2.1% compared to a prewar figure of around 1.5%. Results from the 1976 Intercensal Survey indicate that contrary to earlier projections, there has been no further acceleration in the rate of population increase, rather a slight decline to 2.0%. On the basis of a preliminary analysis (details of which are provided in Annex 1) the moderation in the rate of population growth is associated with significant declines in fertility, especially on Java, between the late 60's and mid 70's. Over 60% of this fertility decline appears to be attributable to changes in marital fertility and the remainder to changes in the proportion of female population currently married. The decline in fertility was offset to a considerable extent by continuing declining trends in mortality. In the period 1965-70 to 1970-75 the observed decline in mortality rates increased the expected life span at birth by about five years for both sexes, to around 47.5 years for females and 43.0 years for males. However, this unusually rapid decline in mortality may be a short-run phenomenon reflecting a recovery from the possible deterioration in health conditions during the early 60's. In any case, much of the evidence on demographic changes is consistent with typical patterns of countries entering the early stages of a transition to lower fertility and mortality rates.

Urbanization

The level of urbanization in Indonesia as revealed in the census and survey figures is quite low. Slightly under 18% of the population resided in areas designated as urban in 1976. Even more striking is the apparent low rate of urbanization over the past 15 years (Table 1.1). Urban growth has averaged less than 3.5% annually but has been significantly lower in Java (less than 3%) than in the other islands (over 4%). Moreover, the figures from the Intercensal Survey show a marked decline in the rate of urbanization, particularly on Java, between 1971 and 1976. There are reasons to believe, however, that these figures may underestimate the actual

Table 1.1: POPULATION DISTRIBUTION AND GROWTH: URBAN, RURAL, TOTAL IN JAVA AND OUTSIDE JAVA, 1961-1976

	Population Distribution			Average Annual Rate of Growth		
	<u>Census</u> <u>Sept. 1961</u>	<u>Census</u> <u>Sept. 1971</u>	<u>Survey</u> <u>Mar. 1976</u>	<u>1961/71</u>	<u>1971/76</u>	<u>1961/76</u>
	-----percent-----			-----percent-----		
<u>JAVA</u>	64.9	63.8	63.0	1.9	1.7	1.8
Urban	(15.6)	(18.0)	(18.1)	3.4	1.8	2.9
Rural	(84.4)	(82.0)	(81.9)	1.6	1.7	1.6
<u>OUTSIDE JAVA</u>	35.1	36.2	37.0	2.4	2.5	2.4
Urban	(13.4)	(16.3)	(17.5)	4.5	4.1	4.4
Rural	(86.6)	(83.7)	(82.5)	2.0	2.1	2.1
<u>TOTAL</u>	100.0	100.0	100.0	2.1	2.0	2.1
Urban	(14.8)	(17.4)	(17.9)	3.8	2.6	3.4
Rural	(85.2)	(82.6)	(82.1)	1.8	1.8	1.8

Source: Calculated from Appendix Tables A-4 and A-5.

rate of "urbanization." First, the figures for 1976 derive from the Intercensal Survey conducted in March in the busy agricultural season. Seasonal movements of labor force and employment in and out of agriculture are large and pervasive in Indonesia. It is possible that this seasonality may affect the March 1976 survey results, raising the proportion of persons counted in rural areas compared to the earlier September censuses. Secondly, in the 1976 Intercensal Survey, urban areas were defined to be the same as those identified as urban in the 1971 Census. Consequently the 1976 figures do not reflect the appearance of new urban areas or any expansion in the boundaries of existing cities and towns. Finally, and perhaps most importantly, statistics based on mutually exclusive rural and urban categories may fail to reveal the full extent of the "urbanizing" process in such a densely populated area as Java. From the evidence on pattern of employment (to be considered in greater detail below) it would seem that improvements in transport, the growth of non-agricultural and manufacturing activities outside of but adjacent to urban centers as well as the increases in daily or short-term commuting may be making increasingly inappropriate for much of Java any sharply drawn distinction between rural and urban sectors.

From 1961 to 1971 smaller towns seem to have grown faster on the whole than the larger cities. Cities and towns with the formal status of "municipalities", most of which have over 50,000 population, grew at an average rate of only 3.1% per year and cities of over 100,000 in 1961 at only 3.2% per year. The growth of the smaller non-municipal urban areas, on the other hand, was at an annual rate of 5.3%. These averages conceal the considerable diversity in growth among cities and regions (Table 1.2). The two largest cities of Indonesia (both in Java)--Jakarta and Surabaya--grew relatively most rapidly, at 4.4% per year or over 50% during 1961-71. With populations of 4.6 million and 1.6 million respectively, these two cities contained nearly 30% of the total urban population. The growth rates of the next four large cities, Bandung and Semarang in Java and Medan and Palembang in Sumatra (each with over 1/2 million population) ranged between 2 and 3% per year during 1961-71. A few cities (each with a population of over 100,000) grew at over 3% per year during 1961-71, and all of these are in Sumatra and Kalimantan. Most other cities with population 100,000 and over grew at much less than 2% per year. Among these sluggishly growing cities are Jogjakarta (0.9% per year) and Surakarta (1.2% per year) in the central areas of Java.

In the outer islands, Medan and Palembang in Sumatra, Manado and Ujung Pandang in Sulawesi, and Pontianak and Banjarmasin in Kalimantan are multi-purpose urban centers for regions at opposite ends of their respective islands. While data are not available on the growth of individual cities since the 1971 census, it is significant that the average rate of urban growth during the succeeding five years has been substantially higher on the islands other than Java.

Table 1.2: GROWTH OF CITIES
(Having 100,000 or More Population in 1961)

<u>Province</u>	<u>City</u>	<u>Population in Thousands</u>		<u>Annual Rate of Growth 1961-71 (Percent)</u>
		<u>1961</u>	<u>1971</u>	
Jakarta	Jakarta	2,973	4,576	4.41
E. Java	Surabaya	1,008	1,556	4.44
W. Java	Bandung	973	1,200	2.12
C. Java	Semarang	503	647	2.55
N. Sumatra	Medan	479	634	2.84
S. Sumatra	Palembang	475	583	2.07
S. Sulawesi	Ujung Pandang	384	425	1.02
C. Java	Surakarta	368	414	1.18
E. Java	Malang	341	422	2.15
Jogjakarta	Jogjakarta	313	342	0.89
S. Kalimantan	Bandjarmasin	214	282	2.79
E. Java	Kediri	159	179	1.19
W. Java	Cirebon	158	179	1.26
W. Java	Bogor	154	195	2.39
W. Kalimantan	Pontianak	150	218	3.81
W. Sumatra	Padang	144	196	3.13
Lampung	Telukbetung	133	199	4.11
N. Sulawesi	Menado	130	170	2.72
W. Java	Tasikmalaya	126	136	0.77
E. Java	Mađiun	123	136	1.01
N. Sumatra	Pewatangsiantar	115	129	1.16
Jambi	Jambi	113	158	3.41
C. Java	Pekalongan	102	111	0.85
Total		9,638	13,087	3.11

Source: Population Census, 1961 and 1971.

Internal Migration

A variety of evidence would seem to indicate a substantial amount of geographic movement on the part of the Indonesian population and work force. But these movements are quite varied in character and difficult to quantify. Circular and temporary migration of various sorts ranging from daily or weekly commuting to considerably longer cycles appears to be common. 1/ The large seasonal fluctuations in labor force and employment (documented in the following sectors) undoubtedly involve short-term shifts in place of employment if not in residence for many workers. These sorts of short-term movements generally cannot be captured in census and survey data on place of residence or employment.

Some general impressions of the magnitude and direction of recent migratory flows, however, can be derived from the results on reported residence in the 1976 Intercensal Survey. These show about 3.0 million persons aged 5 years or above reporting their residence in a Kabupaten different from the one they were living in five years before. Almost three fifths of these moves were between Kabupaten in the same province. So far as can be determined from these gross measures the fraction of the population changing residences within the five-year period does not differ appreciably between Java and Outside Java.

There are some indications that migration between Java and Outside Java has declined since the latter half of the 60's. Estimates of flows to and from Java (Table 1.3) show a sizeable decrease in gross movements and a drop in net migration out of Java from about 300,000 persons in the five year period 1961-66 to under 75,000 during 1971-1976. These figures may underestimate the full extent of gross movements 2/ but the small magnitude of the net flows relative to the size of the populations involved means that migration cannot have been a significant factor affecting the distribution of population between Java and Outside Java over the past decade and a half.

Unfortunately, consistent estimates on the extent and character of internal migration are not yet available. A very crude calculation based on the observed rates of rural and urban growth and assuming similar natural rates of growth in the two areas yields an annual net migration rate of rural households on the order of only one or two per thousand. But such a figure probably underestimates the volume of rural-urban movement. The much larger gross flows are, in any case, more significant measures of the links between rural and urban labor markets. A more complete picture of migration patterns, migrant characteristics and the determinants of migration must await analysis of the 1976 Intercensal and Labor Force Survey data.

1/ See Graeme Hugo, "Circular Migration" in Bulletin of Indonesian Economic Studies, Vol. XIII, No. 3, Nov. 1977.

2/ The fact that the 1976 data are derived from a randomly selected number of sample areas makes estimates of migration movements particularly uncertain.

**Table 1.3: GROSS AND NET MIGRATION FLOWS
FROM AND TO JAVA 1961-1966, 1966-71 AND 1971-76**

	Migrants from Java	Migrants to Java	Net Migration from Java
	-----000's-----		
1961 - 1966	554	255	299
1966 - 1971	424	323	101
1971 - 1976 / <u>1</u>	253	179	74

/1 The two periods overlap since 1976 data refer to 5 years prior to March-April 76, and the 1971 data refer to 5 years prior to September.

Source: 1971 Population Census, Series E, Table 25 for years 1961-1966 and 1966-1971; 1976 Intercensal Population Survey, No. 3, Table 13 for years 1971-76.

Labor Force: Growth and Participation

In recent years, the Central Bureau of Statistics (BPS) has energetically developed its census and survey programs to provide comprehensive, detailed, and timely information on the Indonesian labor force and employment. In addition to the 1961 and 1971 censuses, the Intercensal Survey (SUPAS) in March 1976 generated a substantial amount of data on labor force and employment. This was followed by the National Labor Survey (SAKERNAS) carried out in September-December 1976 as the initial stage of a continuing quarterly survey of labor market conditions. These programs have been developed with a high degree of professional skill and conscientious attention to conceptual clarity and to the maintenance of reasonable comparability between sources. Together they provide an invaluable source of information about the social and economic situation of the population and the only comprehensive data on the employment and labor force developments for Indonesia as a whole and the major islands.

However, like all such statistics, particularly those that must be designed to serve multiple purposes, they necessarily incorporate distinctive conceptual and other characteristics which constrains their use for certain analytic purposes. Perhaps the most fundamental difficulties surround the applicability of aggregate labor force, employment and unemployment concepts in an economy like that of Indonesia where the prevalence of self-employment, household enterprises (farm and non-farm), family labor, and unorganized or "informal" labor markets limits the meaningfulness of a precise division of the population into mutually exclusive categories of employed, unemployed and outside the labor force. Under these circumstances and in a situation where widespread poverty makes it extremely unlikely that most workers are in a position to finance extended periods of search for regular position in wage or salaried employment the usual concept of open unemployment has limited usefulness as a summary measure of the employment situation and current changes in labor supply and demand.

In recognition of these circumstances, beginning with the census of 1971 the BPS has incorporated into its system of labor statistics a narrow definition of unemployment and a correspondingly inclusive definition of employment and the labor force. In contrast to the 1961 census where only those who had worked for two months during the preceding six months were counted as employed, in the 1971 Census (Series C) all those who had worked at least one hour in two days during the preceding week were classified as employed. This definition was modified slightly for the 1976 Intercensal and Labor Force Surveys to include as employed anyone who had worked at least one hour during the preceding week. While these definitional changes reduce the comparability between labor force and employment figures of the 1961 Census and those of the 1971 Census and the 1976 surveys they do not, in themselves, substantially affect the conceptual comparability of the figures

for the latter two years. ^{1/} What is most important, however, is that the definitions underlying the 1971 and 1976 statistics reflect the greater importance in Indonesian circumstances of changes in labor force participation and employment compared to changes in measured unemployment levels as indicators of labor market developments. For this reason in the analysis that follows attention is focused in the first instance on the former measures.

The interpretation of changes in labor force and employment under the inclusive definitions applied in Indonesia is complicated by the extent and variety of labor attachments and economic activities captured in these measures. Not only are these sensitive to short-run, temporary, or seasonal labor market influences, but their observed variations do not permit simple and conclusive inferences about improvements or deterioration in the employment conditions faced by the work force. In particular, the possibility exists that a response by worker households to offset declines in real incomes might be recorded as an increase in labor force participation and employment rates. This is one major reason why the analysis of employment changes has to include careful attention to concomitant developments in wage rates, labor incomes and household living standards.

Simple comparisons between the 1961 and 1971 censuses and the 1976 population and labor force surveys make it impossible to establish reliable and precise estimates of labor force growth over the past 15 years. These sources indicate remarkably rapid increases in the labor force between 1971 and 1976, averaging about 4.7% annually compared to only 1.5% during the preceding decade (Table 1.4). This rate of labor force growth is very unusual despite the changes in the age structure of the population that led to an increase in the annual rate of growth of the population aged 10 and above increased from about 2.3% during the 60's to 2.7% between 1971 and 1976. A similar acceleration--from 1.7% to 2.7%--occurred in the age groups 15-64.

The most important factor affecting the apparent fluctuations in rates of labor force growth, however, are variations in labor force participation rates (Table 1.5). The 1971 census recorded substantial declines in labor force participation both over-all and for individual age groups (the principal exception being the participation rate of females aged 20-54). In 1976 the overall participation rate had reached the level recorded in the 1961 census using a more inclusive definition of labor force. A substantial increase is observable in the proportion of working women in the prime working ages and declines in the participation rates of the youngest and oldest age groups of both sexes over the past 15 years.

^{1/} An adjustment carried out by BPS to put the 1976 survey figures on comparable basis with the 1971 Census (Series C) definitions reduced the estimated size of the 1976 labor force by less than 0.6%. Because this probably lies within the margin of error produced by other causes, this report uses the 1971 and 1976 estimates without adjustment for the change in definition.

Table 1.4: LABOR FORCE: URBAN, RURAL AND TOTAL, 1961-76

	Sept. 61	Sept. 71 ^{/1}	March 76	Oct 76 ^{/2}
	----- thousands -----			
Urban	4,699	6,091 (6,574)	7,642	7,475
Rural	30,134	34,278 (37,545)	48,739	43,539
Total	34,834	40,369 (44,119)	56,381	51,014
Population Age 10 and over	64,414	80,947	91,776	92,870
<u>Average Annual Rates of Growth</u>				
	Sept. 61-Sept.71 ^{/1}	Sept. 71 ^{/1} - Oct. 76	Sept.61-Oct.76	
	----- percent -----			
Urban	2.6 (3.4)	4.1 (2.6)	3.1	
Rural	1.3 (2.2)	4.8 (3.0)	2.5	
Total	1.5 (2.4)	4.7 (2.9)	2.6	
Population Age 10 and over	2.3	2.7	2.5	

/1 Lower labor force estimates are derived directly from the 1971 Population Census (Series C). Alternative labor force figures in parentheses have been estimated by applying overall labor force participation rates for males and females obtained from a linear interpolation of those observed in Sept. 1961 (census) and Sept.-Dec. 1976 (SAKERNAS). See Appendix p. 3. As a result, high and low growth rates reflect these adjustments.

/2 Estimated by projecting March 1976 population and applying labor force ratios from Sept.-Dec. 1976 labor force survey. See Appendix p. 3.

Source: Appendix Table A-4.

Table 1.5: LABOR FORCE PARTICIPATION RATES, 1961-76

	Sept. 61	Sept. 71	March 76	Sept.- Dec. 76
<u>Males</u>				
10-19	43.4	31.6	44.2	35.5
20-54	94.1	89.4	96.0	95.6
55+	83.2	72.9	82.5	75.9
Total	79.8	68.7-75.9 ^{/1}	77.1	73.8
<u>Females</u>				
10-19	23.1	20.9	32.5	21.8
20-54	30.1	38.0	55.1	45.1
55+	34.6	30.8	43.1	32.0
Total	29.4	32.1-34.3 ^{/1}	46.5	36.8
<u>Both sexes</u>				
Total 10+	54.1	49.9-54.5 ^{/1}	61.4	54.9

^{/1} These higher participation rates are estimated from a linear interpolation of overall labor force participation rates in Sept. 1961 and Sept.-Dec. 1976.

Sources: 1961 Population Census, Series SP II, Tables 2.2, 2.4, 4.2, 4.4. See also Appendix Table A-6.
 1971 Population Census, Series C, Tables 2 and 6. See also Appendix Table A-7.
 1976 Intercensal Population Survey, No. 2, Tables 1 and 24. See also Appendix Table A-8.
 Sept.-Dec. 1976 Labor Force Survey, Tables 1.1-1.9. See also Appendix Table A-8.

The magnitude and pattern of change in labor force participation rates raise difficult questions about the reliability and interpretation of the recorded fluctuations. While the inclusive definition of employment and labor force used in the 1971 and 1976 census and surveys tends to increase the sensitivity of the measures to movements in and out of the labor force, the low participation rates recorded for 1971 still may be subject to question. This is particularly so because a major factor is the unusually low rate observed in that year for males in the prime labor force age group 20-54. In order to take explicit account of the possibility that the 1971 figures underestimate the 1971 labor force and employment, alternative estimates have been made by applying higher labor participation rates derived from a linear interpolation of the 1961 and 1976 observations. This crude adjustment (reflected in the figures given in parentheses in Tables 1.4, 1.6 and 1.8) provides what may be considered an upper and lower bound to the rates of increase in labor force and employment between 1971 and 1976.

A high degree of responsiveness of the labor force to labor market conditions in the short term is indicated by the substantial seasonal movements in labor force participation apparent from the March and September-December surveys carried out in 1976. Between the low and peak seasons, the Indonesian labor force swells by something on the order of 5 million workers--some 10% of the slack season labor force. Most of this seasonal variation is accounted for by movements in and out of the labor force by females and by males under 20 and over 55. As might be expected the seasonal movements are most important in the rural area with the largest component of unpaid family workers who are employed in agriculture during the busy season. 1/

Overall Levels of Employment and Unemployment

From the evidence at hand it appears reasonably certain that the movement to higher levels of investment and a more rapid pace of economic growth in the period 1971-1976 was accompanied by correspondingly high rates of increase in employment. From September 1971 to October 1976 employment rose by 7 to 10 million workers; an average annual rate of increase over five years of about 3 to 5%. 2/ Despite the vigorous growth in employment, there

1/ Surveys on Java conducted in December 1975 and April 1976 show an increase from 28% to 45% in female participation rates in rural areas and virtually no change in labor force participation by rural males, and urban females. (Han Redmana, Hazel Moir and Daliyo, Labor Force and Labor Utilization in Selected Areas in Java: Results of an Experimental Survey, National Institute of Economic and Social Research, August 1977.)

2/ It is particularly important to keep in mind that employment estimates from census and labor force surveys provide a count of persons at a particular time classified according to their primary area of activity. Without information on hours of work the changes observed between two survey dates can, at best, provide only an imperfect indicator of changes in the level of labor utilization in any particular sector or in the aggregate. However, the observed level of labor force participation and other evidence to be considered in more detail below on stable or rising levels of wages and incomes give support to the conclusion that a rapid growth in employment has occurred since 1971.

Table 1.6: EMPLOYMENT AND UNEMPLOYMENT, SEPTEMBER 1971-OCTOBER 1976

	Sept. 1971/ <u>1</u>	March 1976	Oct. ^{/<u>2</u>} 1976	Average Annual Rates of Growth	
				Sept. 71/ <u>1</u> - March 76	Sept. 71/ <u>1</u> - Oct. 76
	-----thousands-----			-----percent-----	
URBAN					
Employment	5,796 (6,256)	7,218	7,000	5.0 (3.2)	3.8 (2.2)
Unemployment	295 (318)	424	475	8.4 (6.6)	9.8 (8.2)
Labor Force	6,091 (6,574)	7,642	7,475	5.2 (3.4)	4.1 (2.6)
Measured Unemployment (%)	4.8 (4.8)	5.5	6.4		
RURAL					
Employment	33,678 (36,888)	48,091	42,842	8.2 (6.1)	4.8 (3.0)
Unemployment	600 (657)	648	697	1.7 (-.3)	3.0 (1.2)
Labor Force	34,278 (37,545)	48,739	43,539	8.1 (6.0)	4.8 (3.0)
Measured Unemployment (%)	1.8 (1.8)	1.3	1.6		
TOTAL					
Employment	39,474 (43,144)	55,309	49,842	7.8 (5.7)	4.7 (2.9)
Unemployment	895 (975)	1,072	1,172	4.1 (2.1)	5.4 (3.6)
Labor Force	40,369 (44,119)	56,381	51,014	7.7 (5.6)	4.7 (2.9)
Measured Unemployment (%)	2.2 (2.2)	1.9	2.3		

^{/1} Lower labor force and employment estimates are derived directly from the 1971 Population Census (Series C). Alternative labor force figures in parentheses have been estimated as explained in footnote ^{/1} of Table 1.4. Employment ratios from September 1971 census were applied to the higher labor force figures resulting in higher employment estimates. See Appendix p. 3. High and low growth rates reflect these adjustments.

^{/2} Estimated by projecting March 1976 population and applying labor force and employment ratios from Sept.-Dec. 1976 labor force survey. See Appendix p. 3.

Source: Based on Appendix Table A-4.

has not been any reduction in open unemployment. Indeed both the absolute numbers of unemployed and the rate of unemployment may have risen. While there was only a negligible rise in the recorded overall rate of unemployment from 2.2% to 2.3% between September 1971 and September-December 1976, the rate of urban unemployment rose from 4.8 to 6.4% and the number of estimated unemployed urban workers increased by 160-180,000 (Table 1.6).

These relatively small increases in open unemployment, however, may be less important than the observation that they may be heavily influenced by short period changes in labor force participation rates. As noted earlier the distinction between openly unemployed workers and workers who may be temporarily classified as out of the labor force is a difficult one to make in Indonesia. Under these circumstances, open unemployment is unlikely to serve as an adequate indicator of the current labor supply and general employment situation. Movements in and out of the labor force become as important as movements in and out of unemployment.

In fact, the Intercensal Survey of March 1976 shows that there were over 5.3 million workers (almost 10% of the number included in the labor force) who were classified as out of the labor force but who nevertheless expressed a "desire" for work, although for one reason or another they were not "actively seeking" employment. It is impossible to determine how strong this desire might be or under what circumstances this group would be attracted into the labor force. Over half were in the age group 10-19 and almost three quarters were females, so that it is a fair presumption that for many, if not most, employment was an alternative only to the extent it could be combined with educational or household activities or would be sufficiently remunerative to offset the costs of giving up those activities in whole or in part.

None of this is to deny the importance of open unemployment as a problem since it tends to be concentrated on particular groups of workers. The incidence of open unemployment is most severe in urban areas where unemployment rates generally are several times higher than those observed in rural areas. However, sight should not be lost of the fact that rural workers recorded as unemployed constitute over 60% of the total unemployed. The average duration of urban unemployment also appears to be substantially longer--about 9 months compared to about 6 months in rural areas. ^{1/} In both rural and urban areas, unemployment is concentrated among the younger workers. Data from the 1971 census and 1976 surveys show unemployment rates for urban workers in age groups under 25 consistently at levels of 10% or higher. While in rural areas the rate of unemployment is substantially lower (approximately 4% or less), one-half to three quarters of the total unemployed in both areas is accounted for by unemployed workers under 25. This pattern would indicate that the bulk of open unemployment is connected with job seeking by new entrants to the labor market.

^{1/} See 1976 Intercensal Population Survey, number 2, Table 23.

There seem to be no great differences between males and females with respect to the incidence and composition of unemployment. Although rates for women are slightly below those for men, this may reflect a greater tendency for women to leave the labor force when unsuccessful in the search for employment.

Sectoral Patterns of Employment Change

The most important feature of the employment developments in Indonesia during recent years is the relative shift from agricultural to non-agricultural activities. In the fifteen years from 1961 to 1976 the proportion employed in agriculture declined from over 73% to under 62% (Table 1.7). The increase in the proportion of employed in the manufacturing and trade sectors together accounted for 90% of the relative decline in agricultural employment; the share of employed in manufacturing rose by about 45% and that of trade more than doubled over the period. Nevertheless, the low level of industrialization in Indonesia is apparent in the fact that in 1976 manufacturing employment still amounted to less than 10% of the total.

While it is impossible to establish precise magnitudes of sectoral employment changes over the past 15 years because of the problems of comparability between the 1961 census and later figures. Even when comparisons are limited to the five years between 1971 and 1976, estimates are subject to considerable uncertainty. However, certain trends stand out sufficiently to sustain the judgment that they do not simply reflect statistical vagaries.

Principal among these is the fact that even though somewhere between 2 to 5 million more workers found employment in agriculture in the 1976 slack season than five years earlier; of the total increase in employment roughly one half to two thirds was in non-agricultural activities. Even more striking, perhaps, is the fact that non-agricultural sectors in rural areas accounted for around half of the total increment in employment.

While estimates of employment growth rates at the individual sector level are exceptionally hazardous, it is worthy of note that average rates of increase in rural employment exceeded those of urban areas in each of the principal non-agricultural sectors (Table 1.8). The rapid growth in employment in trade and transport, 10-13% per year, may in large measure be related to the substantial increases in agricultural production (and presumably incomes) for the years 1971-1976. Rural manufacturing employment apparently grew at rate somewhat higher than in urban areas overall and Outside Java though not on Java itself. In absolute terms, however, as best as can be estimated with the data at hand, the 750,000 to 1 million increase in those employed in rural manufacturing was over 4.7 times the increase in urban manufacturing employment.

Conclusion

From this brief survey of the major trends in population, labor force and employment, a few general features of recent developments stand out. The acceleration in the growth of population observed during the 60's

**Table 1.7: SECTORAL DISTRIBUTION OF EMPLOYMENT, 1961, 1971 AND 1976
(percent)**

	Sept. 61	Sept. 71	Sept.- Dec. 76
Agriculture, Forestry, Fishing	73.4	65.9	61.8
Mining and Quarrying	0.3	0.2	0.2
Manufacturing	5.8	7.8	8.4
Construction	1.8	2.0	1.7
Electricity, Gas, Water	0.2	0.1	0.1
Trade, Financing, Insurance	6.8	11.2	14.5
Transport, Storage, Communication	2.1	2.4	2.7
Services	9.6	10.4	10.6
Total ^{/1}	100.0	100.0	100.0

^{/1} Excluding those counted as employed but whose sector of employment is unknown.

Sources: 1961 - Appendix Table A-9.
1971 - Appendix Table A-10.
1976 - Appendix Table A-14.

Table 1.8: CHANGES IN AGRICULTURAL AND NON-AGRICULTURAL EMPLOYMENT,
RURAL AND URBAN AREAS, SEPTEMBER 1971 - OCTOBER 1976

	<u>/1</u> Average Annual Rate of Increase (%)		
	Urban	Rural	Total
<u>INDONESIA</u>			
Agriculture	3.5 (1.7)	3.4 (1.6)	3.4 (1.6)
Non-Agriculture	3.8 (2.3)	3.8 (6.9)	7.0 (5.2)
Of which:			
Manufacturing	5.0 (3.5)	6.5 (4.6)	6.2 (4.4)
Construction	1.6 (0.1)	2.0 (0.2)	1.9 (0.1)
Transport, Communication	2.3 (0.8)	11.4 (9.5)	6.7 (5.0)
Trade, Financing, Insurance	5.4 (3.9)	12.6 (10.6)	10.2 (8.4)
Services	3.1 (1.6)	6.5 (4.6)	4.9 (3.2)
Total*	3.8 (2.2)	4.8 (3.0)	4.7 (2.9)
<u>JAVA</u>			
Agriculture	4.4 (5.6)	3.9 (2.0)	3.8 (1.9)
Non-Agriculture	3.1 (1.8)	7.6 (5.6)	6.0 (4.3)
Of which:			
Manufacturing	5.2 (3.8)	4.7 (2.8)	4.8 (3.0)
Construction	2.2 (0.8)	4.8 (2.8)	3.8 (2.0)
Transport, Communication	2.0 (0.8)	12.0 (10.1)	6.8 (5.2)
Trade, Financing, Insurance	4.0 (2.7)	10.2 (8.2)	8.3 (6.5)
Services	2.0 (0.8)	6.1 (4.1)	4.2 (2.6)
Total*	2.7 (1.4)	5.1 (3.1)	4.7 (2.9)
<u>OUTSIDE JAVA</u>			
Agriculture	7.7 (5.4)	2.5 (0.8)	2.7 (1.0)
Non-Agriculture	5.6 (3.5)	12.3 (10.5)	9.7 (7.8)
Total*	6.0 (3.9)	4.4 (2.7)	4.6 (2.9)

* Employed workers whose sector of employment is unknown have been allocated in proportion to the distribution of other employed workers.

/1 See footnotes Table 1.6.

Source: Appendix Tables A-10, A-11, A-12, A-14.

appears to have ended with an estimated annual rate of increase of 2.0% during the first half of the 70's, or slightly less than the 2.1% of the preceding decade. In Java the rate of population growth appears to have slowed significantly despite some signs of reduced net migration to other islands. The pace of urbanization also has slowed in recent years, if indications from the 1976 Intercensal Survey can be relied upon. Here there is more striking difference between Java, where the observed rate of urban growth appears to have fallen almost as low as that of the rural population, and the Outside Java, where urbanization has proceeded at a rate about double that of rural population growth. But these estimates almost certainly understate the pace of urbanization on Java because they do not take into account shifts in areas from rural to urban or the growth in rural areas near or adjacent to urban centers.

The higher rates of population increase of the earlier years have resulted in a higher proportion of the population in the working age groups. With an upward movement in labor force participation rates among females the labor force expanded at the high rate of 2.9 to 4.7% a year between 1971 and 1976. Since during the same period employment expanded at almost the same high rate, the overall rate of measured unemployment appears to have risen only moderately. The figures available indicate that unemployment levels in urban areas may have risen significantly. But, by and large, open unemployment continues to be concentrated among the younger age groups in urban areas and is only a very imperfect indicator of the state of the labor markets relevant for the bulk of the work force. The large seasonal movements in and out of the labor force associated with seasonal fluctuations in employment opportunities reveal a high degree of responsiveness of the labor supply to short period change in the demand for labor.

Finally, despite the continuing increases in the number of rural workers employed in agriculture, employment in non-agricultural activities in rural areas appears to have grown 2 or 3 times more rapidly. By 1976 the percentage of total employed in agriculture had dropped to 62% while non-agricultural sectors in rural areas accounted for 45-55% of the total increment in employment between 1971 and 1976.

What emerges from these aggregate patterns of labor force growth and employment changes is a general picture of an evolving employment situation which does not lend itself to simple or easy characterization. On the one hand observed high rates of growth in overall employment levels may reasonably be interpreted as evidence of widespread and substantial impact on the labor market of the rapid increases in output and investment in the first half of this decade. A similarly favorable interpretation can be given to the rise in labor force participation rates as a response to the expansion of employment opportunities and a mechanism through which the work force has been able to participate in the rising levels of national incomes. While the existing evidence provides considerable support for such a favorable view of recent employment developments, it also leaves room for less favorable interpretations. Moreover, certain features point to more severe problems in the future.

In particular the aggregative employment trends so far examined provide only limited insight into the employment problems faced by particular groups of workers and households who may be adversely affected by developmental changes. The increase in labor force participation and the rapid growth of non-agricultural employment in rural areas might be interpreted to reflect less of a response to expanding earnings opportunities and more of an effort by rural households to maintain their income levels in the face of a relatively declining demand for agricultural labor. The fact that much of the increase in non-agricultural activity has occurred in rural areas and the rate of urbanization on Java appears to have declined substantially can be interpreted as lending some credence to the latter view. Certainly much of the rural manufacturing and service employment must be expected to consist of relatively small scale and low productivity operations with correspondingly low returns to labor. The indication of possibly rising rates of urban unemployment during a period of fast employment growth may also be cited as cause for legitimate concern.

To even begin to resolve these questions requires probing more deeply into what evidence can be gathered on recent employment experience in rural and urban labor markets and particularly into the course of real wage and income levels. This is the task taken up in the following sections.

II. RURAL EMPLOYMENT AND LABOR MARKETS

Employment in Agriculture

In 1976 about two-thirds of Indonesian households in rural areas and about one-tenth of urban households relied on the agricultural sector as the major source of income. Since 1961, there seems to have been a steady increase in the absolute number of people employed at least part of the time in agriculture. Census results for 1961 and 1971, and the results of the Intercensal and National Labor Force Surveys in 1976 provide the main basis for these judgments, but extreme care is needed in interpreting the figures because of differing definitions of employment. In 1961, respondents were considered employed in agriculture if they had worked for at least two months out of the last six in any sector and considered agriculture to be their main sector of employment. Although the census count was made in October, a period of low agricultural activity, the six-month time frame ensured that those who were drawn into agriculture during the harvest months, March through May, were registered as agricultural sector workers.

In 1971, different definitions were applied. Respondents were classified as working in agriculture if they had worked in that sector two days (at least one hour each day) during the previous week. As the census was conducted during September, the resulting figure probably represents close to the minimum employed in agriculture, making no allowance for the larger numbers that would be employed during the harvest season. However, the 1971 census did include a question asking respondents if they worked in agriculture during the last cropping season. As this specified neither a minimum length of work, nor a distinct time period, the response to this question is not strictly comparable to that asked in the previous census. The response can, however, be considered a high estimate of the level of employment in agriculture. As the high and low figures for 1971 differ by over 8 million, it is clear that no single figure can give a satisfactory indication of the extent of agricultural employment.

In 1976, two surveys were undertaken which provide seasonal figures for levels of agricultural employment. The Intercensal Population Survey, conducted in March, defined employed to mean working at least one hour during the previous week, and also asked the hours of work of the respondent. These questions would be expected to give close to a maximum figure for agricultural employment, as the reference week was during the busy season for agriculture. In fact, 35.8 million people stated that they were working in agriculture during the one week reference period, out of a measured working population of 54.5 million.

In September-December 1976, the National Labor Force Survey asked similar questions of respondents. Around 29.1 million people attributed their employment to the agricultural sector on the basis of these questions. As the reference week was one of low agricultural activity, this figure can probably be considered close to the minimum number employed in agriculture.

Both the 1976 Surveys covered only 23 of Indonesia's provinces fully, thus omitting a small fraction of the total population. 1/ As well as summarizing the various measurements of agricultural employment since 1961, Table 2.1 also shows adjusted 1976 data to allow for the provinces not covered. On this basis, the maximum and minimum levels of agricultural employment would be 37.2 million and 30.8 million respectively.

From the census data, it is difficult to discern any systematic differences between the employment trends in Java and Outside Java. The rate of population growth in Java has been considerably lower than in the other islands, 2/ but the rate of growth of the labor force in each has been only marginally different. Equally there is only a small difference between the respective rates of growth of employment. Similar patterns of seasonal employment are observed in each area (though the variation is less pronounced outside Java), and the sources of that additional labor are by and large similar.

The principal difference that is apparent between Java and Outside Java considered collectively is the relative importance of agriculture. In Java the proportion of the labor force employed in agriculture during the slack season is around 57%, rising to 63% during the busy season. Outside Java, the proportion of agricultural employment in the labor force is as high as 66% during the slack season, rising to around 72% during the busy months. The reason for this difference is probably the lesser degree of economic diversification outside agriculture in the other islands as compared with Java, as well as a more prominent estates sector.

Seasonal Changes in Agricultural Employment

As noted earlier a most important characteristic of agricultural employment is its extremely large seasonal variation. From the 1971 figures the labor force in agriculture would appear to have declined by 25% at the end of the cropping season; in 1976, the decline was about 17% between March and October.

Conflicting evidence exists regarding the seasonal supply of labor to meet the needs of the peak agricultural season. The census data suggest that much of the seasonal change is met by drawing unpaid family labor into the labor force, largely women. Moreover, it is known that women play a major role in harvesting and, until recently, pounding and hulling rice. On the other hand there is a wide range of evidence indicating that the hiring of labor is extensive during the busy months, and that most seasonal needs are met by casual wage laborers.

1/ Part of East Nusa Tenggara, Maluku and Irian Jaya provinces were excluded.

2/ In fact most of the population growth in Outside Java took place in the urban areas. The growth rate of the rural population of Outside Java from 1971 to 1976 was almost the same as that in Java.

**Table 2.1: CENSUS AND SURVEY ESTIMATES OF PERSONS EMPLOYED
IN AGRICULTURE, 1961-76
(in thousands)**

	Unadjusted			Adjusted ¹
	Agricultural Employment ²	Total Labor Force	Agricultural Employ- ment as Percentage of Labor Force	Agricultural Employment ²
INDONESIA				
<u>1961</u>	23,982	34,578	69.4	24,183
<u>1971</u> "Cropping Season" September	33,159 23,821	40,100	64.4	26,020
<u>1976</u> March October	35,830 29,133	54,490 48,431	65.8 60.2	37,236 30,814 ³
JAVA				
<u>1961</u>	14,860	22,727	65.4	14,860
<u>1971</u> "Cropping Season" September	21,579 15,714	26,362	59.6	15,714
<u>1976</u> March October	23,240 18,602	36,949 32,529	62.9 57.2	19,015 ³
OUTSIDE JAVA				
<u>1961</u>	9,122	11,851	77.0	9,323
<u>1971</u> "Cropping Season" September	11,581 10,107	13,738	73.6	10,306
<u>1976</u> March October	12,590 10,531	17,541 15,902	71.8 66.2	11,799 ³

¹ Adjusted for geographical coverage. See Appendix, p. 2.

² Employed persons whose sector of employment is unknown have been allocated to the agricultural sector in proportion to the distribution of other employed workers.

³ Estimated agricultural employment. See Appendix Table A-14.

Sources: Unadjusted data: 1961 Population Census SP IX, Tables 4, 4.1, 8.
1971 Population Census Series C, Tables 7, 7.1, 11.
1976 March Intercensal Population Survey, Series 2, Tables 2, 9 and unpublished data supplied by BPS.
1976 Sept.-Dec. National Labor Force Survey, Tables 11.9 14.9.
Adjusted data: A-9, A-10, A-11, A-12, A-13, A-14.

Data from the 1971 census indicate that the seasonal change in agricultural employment is not evenly distributed either between the sexes, or between workers of different status. Over two thirds of the incremental workers drawn into agriculture during the cropping season are women, despite the fact that women make up only a little over 30% of the labor force during the slack season.

Table 2.2: AGRICULTURAL EMPLOYMENT BY SEX, 1971 AND 1976 1/
(in percent)

	Male	Female	Total
<u>1971</u>			
"cropping season"	58.9	41.1	100.0
September	68.1	31.9	100.0
seasonal change	31.6	68.4	100.0
<u>1976</u>			
March	60.6	39.4	100.0
October	66.6	33.4	100.0
seasonal change	31.9	68.1	100.0

1/ Employed persons whose sector of employment is unknown have been excluded.

Sources: Population Census 1971, Series C, Tables 7 and 11.
Intercensal Population Survey 1976, Series 2, Table 6.
National Labor Force Survey 1976, Tables 3.7 and 3.8

From the 1971 census figures showing the status of workers in agriculture it would appear that around 70 - 75% of the increment in the labor force for the cropping season are unpaid family workers--relatively small changes being observed among other types of workers. About 30% of those employed in agriculture during the slack season are recorded as unpaid family workers.

There is, however, other information regarding the extent of family labor use to meet seasonal labor demand which is not wholly consistent with that contained in the census. A research study 1/ undertaken during the 1974 wet season in five villages in Central Java shows that not more than 15% of

1/ Lembaga Penelitian Ilmu-Ilmu Sosial, Universitas/IKIP Kristen Satya Wacana, Salatiga "Penelitian Sosio-Agro-Ekonomi Daerah Tuntang-Serang di Wilayah Kabupaten Demak-Grobogan dan Lima Desa Sampel", p. 90.

the labor input, measured in mandays, is provided by family labor, even on the smallest farms of less than 0.5 hectares, while for the larger farms, the proportion is lower. An earlier study ^{1/} during the 1969/70 wet season in sample villages in all areas of Java also observed that about 15% of labor use was provided by family labor. Moreover, in both these studies family worker was defined to include the farmer owner or head of the household, whereas in the census data own account workers and employers--presumably a fairly comparable group--are excluded. The two village studies each find that the remaining 85% of labor input is provided by hired labor.

In view of the large number of family workers who can apparently be drawn into the labor force, the proportion of hired labor is surprisingly high. An explanation offered by both researchers is that the need for speed in finishing many agricultural operations once they are begun dictates the use of outside labor. Traditional practices in agriculture also have an important bearing on the use of family labor in some operations: for example, it was customary in the past to undertake harvesting and some other jobs on a tolong-menolong mutual help basis with farmers working in each others fields. When recorded statistically, this situation would appear as a very low proportion of family labor input.

As well as seasonal differences in the size and composition of the labor force, there are also marked differences in labor utilization, (taking agricultural employment alone). For 1976, the results for the Intercensal Population Survey and the National Labor Force Survey provide data on the hours worked during the respective reference weeks, (in March and October), which suggest that most of the net seasonal recruits to agriculture work a full week, defined as between 35 and 59 hours. The number working in agriculture more than 10, but for less than 34 hours a week, is fairly constant between seasons, showing less than 14% change though there is a marked increase in the number of people working less than 10 hours per week.

The interpretation of these data is problematic. It can be argued that underutilized family labor during the off-season becomes fully utilized during the cultivation season, and shortages of labor are met by hiring labor for short periods. Alternatively, the data could be construed as indicating that family labor is used with about the same degree of utilization year round, and that seasonal shortfalls are met by hiring full-time labor. Obviously neither of these extreme interpretations is completely satisfactory, though an interpretation closer to the latter is more likely. Too little is known about the migratory patterns of the labor force but the indications are that substantial numbers of laborers move back and forth between city and countryside according to the season, seeking whatever work is available. As the 1976 Intercensal Population Survey records 76.3% of all workers and 80.4% of male workers, in the urban areas working 35 or more hours during the reference week, it is unlikely that migrants would be attracted

^{1/} William L. Collier and Sajogyo, "Employment Opportunities Created by the High Yielding Rice Varieties in Several Areas on Java", Research Note No. 8, Agro Economic Survey, Bogor, June 1972 p. 4.

back to the countryside for part-time work, unless for substantially higher wages than could be earned in the cities. Such a gap is not apparent--in fact scattered wage figures indicate higher earnings in the cities--and it would therefore be expected that most workers return to agriculture because they are reasonably sure of obtaining work for a substantial part of the week.

Table 2.3: NUMBERS EMPLOYED IN AGRICULTURE BY SEASON AND HOURS WORKED /1
(in thousands)

Weekly hours worked	March 1976	October 1976	Seasonal change
0-9	2,141	5,084	+2,943
10-24	7,875	6,767	-1,108
25-34	6,025	5,294	- 731
35-59	18,905	12,270	-6,635
60 or more	2,290	1,399	- 891
Total	37,236	30,814	-6,422

/1 Adjusted for geographical coverage, see Appendix Page 2; employed persons whose sector of employment is unknown have been allocated to the agricultural sector in proportion to the distribution of other employed workers. The percent distribution of agricultural employment by hours worked from SUPAS and SAKERNAS was applied to the total to obtain the above distribution for March and October respectively.

Sources: Intercensal Population Survey, 1976 (SUPAS), Table 16.
National Labor Force Survey, 1976 (SAKERNAS), Table 5.9.
Appendix Tables A-13 and A-14.

This interpretation would confirm the importance of unskilled laborers in meeting the needs of the agricultural season, since it is they who in fact supply most of the additional manhours, even though numerically much fewer than the additional number of family workers. It also draws attention to the role of multiple occupations for a large section of the population as a means of livelihood even though this involves the inconvenience of short-term migration.

Some Structural Factors in the Demand for Agricultural Labor

Within the agricultural sector, a number of important changes have been occurring in recent years which would be expected to affect the level and pattern of demand for labor. More land has been brought under cultivation, especially Outside Java, and more land has been brought under irrigation both inside and Outside Java; new varieties of rice have been developed

suitable for double cropping; and more intensive cultivation practices have been introduced involving the use of fertilizers and pesticides. All of these factors would, ceteris paribus, be expected to shift the demand curve for labor outwards. Yet these developments have also been accompanied by greater use of labor-saving techniques in certain activities, such as harvesting, weeding, rice pounding, and more recently, land preparation. There have also been institutional changes within the agricultural sector, particularly in harvesting practices and land ownership, which have tended to displace labor.

(i) Increases in cultivated area

Between 1963 and 1973, the cultivated area in Indonesia expanded from 14.5 million hectares to 16.4 million hectares, an increase of 13.3%. Comparable figures are not available for harvested area, which could have increased more rapidly if there were more widespread double-cropping. The likelihood and geographical spread of increased double-cropping is discussed in the following section on irrigation. While the immediate hypothesis must be that the opening up of new land has raised the demand for labor, the geographical distribution of the increase in cultivated area suggests that even if the total demand for labor grew, little or none of the increase took place inside Java; the total cultivated area in Java was more or less constant. Almost the entire additional area, and therefore potential employment impact, was Outside Java. 1/

There has been a slight change in the pattern of cultivated area in Java, with implications not only for overall labor demand, but also for income distribution. While the area cultivated by Javanese smallholders declined by 2.5% in ten years, their number increased from 7.94 million to 8.27 million over the same period, an increase of 4.2%. Even if no other changes had occurred (though they did) this of itself would have resulted in a greater dilution of smallholders' earnings. On the other hand, the 29.4% increase in the cultivated area of estimates on Java may have resulted in more employment, but for fewer people and at higher levels of productivity than were displaced by this switching of land.

1/ Certain smallholdings of less than 0.1 hectares were included in the Census coverage in 1973, but were excluded in 1963. If allowance is made for this, the trends indicated are even more pronounced.

Table 2.4: CULTIVATED AREA, 1963-73
(in thousand hectares)

	1963	1973	Absolute Change	% Change
<u>Smallholder farms</u>	<u>12,884</u>	<u>14,168</u>	<u>+1,284</u>	<u>10.0</u>
Java	5,647	5,505	- 142	-2.5
Outside Java	7,237	8,663	+1,426	19.7
<u>Estates</u>	<u>1,591</u>	<u>2,226</u>	<u>+ 635</u>	<u>39.9</u>
Java	524	678	+ 154	29.4
Outside Java	1,066	1,548	+ 482	45.2
<u>Total</u>	<u>14,475</u>	<u>16,394</u>	<u>+1,919</u>	<u>13.3</u>
Java	6,171	6,183	12	0.2
Outside Java	8,303	10,211	+1,908	23.0

Source: Sensus Pertanian 1963 and 1973. Figures may not add because of rounding.

Outside Java the availability of still uncultivated land enabled an important increase to occur both in the area cultivated by smallholders and that by estates, though reportedly this involved the use of progressively less productive land. The area planted by estates increased by 45% from 1963 to 1973, and has continued to increase since then. Smallholders area increased by 20% over the ten year period. Since 1973, the continued expansion of estates and the transmigration settlement programs have probably continued to bring further land under cultivation and generate additional employment in the relevant areas. For estates, data provided by the Directorate of Estates in North Sumatra, the province most dependent on estates agriculture, indicate that the continued expansion of the estates is resulting in increased employment in that area, mainly in the use of seasonal and contractual labor.

Table 2.5: WORKERS ON GOVERNMENT ESTATES, NORTH SUMATRA
(in thousands)

	1973	1974	1975	1976
Permanent Workers	110.2	107.0	104.9	103.6
Seasonal/Contractor Workers	13.8	21.6	37.7	43.1
<u>Total</u>	<u>124.0</u>	<u>128.6</u>	<u>142.6</u>	<u>146.7</u>

Source: Data provided by Directorate of Estates, North Sumatra.

(ii) Irrigation

The change in cultivated area is, as noted, however, an imperfect and possibly misleading indicator of trends in the demand for agricultural labor, as there has been an important and continuing investment in irrigation, offering the possibility of greater cropping intensity, along with a greater input of manpower. Statistics from the Agricultural Censuses indicate that investment in irrigation resulted in an 18% increase in the total irrigated area in Indonesia between 1963 and 1973, but the distribution of the increase between islands was extremely uneven. The amount of newly irrigated land increased only negligibly in Java, by less than 4% in ten years, while the major part of the increase was shared by Sumatra, Kalimantan and Sulawesi.

The employment impact of irrigation investments cannot, of course, be accurately measured by such simple indicators as the increase in total irrigated area, because the employment potential of irrigated land depends to a considerable extent on the type and efficiency of the irrigation system. Rainfed sawah has a much lower employment potential than technical irrigation because of the greater cropping intensity that can be achieved with the latter. A typical crop rotation on rainfed land might be a crop of rice planted around November and harvested in March/April, followed by another food crop such as corn or beans planted in May with the harvest date depending on the particular crop. With technically irrigated sawah, it is possible to cultivate two crops of rice, or even a third crop if a small area is reserved for starting seedlings before the previous crop is harvested. The average number of mandays actually used in cultivating a hectare of irrigated sawah in Java year round has been examined in a number of studies. For example, two studies by the University of Satya Wacana ^{1/} measured the labor input up to the point of harvesting in different groups of villages, and found figures ranging from around 100 mandays per hectare per year to over 250 man-

^{1/} Lembaga Penelitian Ilmu-Ilmu Sosial Universitas/IKIP Kristen Satya Wacana, Salatiga "Penelitian Sosio-Agro-Ekonomi Daerah Tuntang-Serang di Wilayah Kabupaten Demak-Grobogan dan Lima Desa Sampel."

days, depending on the type of irrigation. The figure for dry land observed in one of the two studies is also 100. Various project appraisal reports and other studies have estimated "optimal" labor input figures, and these too vary widely for the same reasons. To a large extent, therefore, the employment impact of a given increase in irrigated area depends on the type of irrigation being created. It is therefore difficult to draw any conclusion as to what gain in employment could have been achieved by irrigation investments in Java in recent years, especially as much of the investment has been for upgrading or rehabilitating irrigation systems.

Table 2.6: WET LAND AREA BY ISLAND /1
(in thousands of hectares)

	1963	1973	Absolute Change	% Change
Java	2,528	2,618	90	3.6
Sumatra	779	1,037	258	33.1
Kalimantan	278	434	156	56.1
Sulawesi	247	445	198	80.2
Bali	73	81	8	11.0
Nusa Tenggara	170	210	40	23.5
<u>Indonesia</u> ^{/2}	<u>4,075</u>	<u>4,825</u>	<u>750</u>	<u>18.4</u>

/1 Farms of less than 0.1 hectare are excluded. By wet land is meant sawah, whether technically irrigated, rainfed or inundated.

/2 Maluku and Irian Jaya are excluded.

Source: Sensus Pertanian, 1963 and 1973.

Some indication of the significance of the extension and rehabilitation of irrigation systems for agricultural employment, however, can be derived from available figures on increases in total harvested area. On Java, where it is likely that the total area cultivated is decreasing, the irrigated and wet land (sawah) area harvested increased at the rate of 1.6% per year from 1968 to 1976 (Table 2.7). The increase appears to have been fairly steady up until 1974 with a decline of about 5% in the following two years. To some extent this decline in area harvested was the result of untimely rainfall and damage by pests and disease. Outside Java over the same period the increase in harvested sawah acreage has averaged 2.0% a year with no signs of any break in the upward trend. Although the figures suggest a significant increase in the intensity of land use on Java, the consequent

^{/1}
Table 2.7: IRRIGATED AND WET LAND ~~HARVESTED AREA~~
 IN PADDY RICE, 1968-1977

	Java	Out- side Java	Total
	----- million ha. -----		
1968	3.86	2.51	6.36
1969	3.95	2.60	6.54
1970	3.96	2.72	6.68
1971	4.05	2.84	6.89
1972	4.01	2.60	6.61
1973	4.24	2.83	7.06
1974	4.45	2.89	7.34
1975	4.39	2.95	7.33
1976	4.22	3.01	7.23
1977 ^{/2}	4.15	3.06	7.21
<u>Average Annual Growth Rate^{/3}</u>			
1968-1977	1.2	2.0	1.5

^{/1} Refers to irrigated and rainfed sawah.

^{/2} Preliminary estimate.

^{/3} Computed by fitting semi-log regression line.

Source: Central Bureau of Statistics.

employment impact is unlikely to have added more than 1% per year to the demand for agricultural labor. In many cases the effectiveness of the rehabilitation and construction of new irrigation systems has been inhibited by the absence of tertiary canals to bring irrigation water to fields lying away from the main canals. But this judgment possibly understates the importance of irrigation investments for agricultural employment. Improvements in irrigation have been only part of the process of change in agricultural technology that has increased the productivity of farmers and maintained the opportunities for productive returns to the additional labor in agriculture.

(iii) Improved rice technology

During the early years of experimentation with new varieties of rice in Indonesia, expectations were high on the part of many commentators that these varieties would not only help meet Indonesia's food needs, but would employ additional labor in the process. New high yielding varieties were launched initially through a pilot BIMAS project as early as 1959/60, but were only propagated on a wider basis towards the end of the 60's. The present day program provides credit and inputs, such as seeds, fertilizer, insecticides, pesticides, and sprayers, and has been largely unchanged in scope since 1972/73. The area planted to the new varieties of rice expanded rapidly from 2.5% of the country's total rice land in 1968/69 to over 40% since 1974/75, ^{1/} though it has slowed markedly since then (Table 2.8).

During the 1969/70 season, a study was conducted by Collier and Sajogyo of the labor used up to the point of harvesting in cultivating different varieties of rice. ^{2/} The village studies were in all areas of Java, and covered about 400 farms. The conclusion of this study was that the use of IRRI improved varieties of rice as used in conjunction with improved cultivation practices had increased labor use in the sample villages on average by 25% as compared with local varieties or 20% as compared with national improved varieties. The study concluded that "if the improved varieties were adopted on the majority of farms in Java, the employment of labor and especially hired labor would definitely increase, maybe even attracting people who had migrated to the cities."

However, the same researchers, and others, have subsequently reviewed recent experience in a broader context and no longer see the adoption of high yielding varieties as adding substantially to the demand for agricultural labor. The interaction of agronomic, economic, social and institutional factors has convinced many researchers that for a variety of reasons the intensity of labor use in agricultural and particularly in rice production is now declining. If this is indeed the case, it raises the possibility that the expansion of the numbers employed in agriculture may be accompanied by a decline in average hours worked. Many of the social and institutional

^{1/} Adelita Palacpa, World Rice Statistics.

^{2/} Collier, Wm., and Sajogyo; Employment Opportunities Created by the High Yielding Rice Varieties in Several Areas of Java, Agro-Economic Survey, Research Note No. 8, June 1972.

Table 2.8: AREA CULTIVATED UNDER OFFICIAL PROGRAMS
(in thousands of hectares)

	BIMAS	INMAS	TOTAL
1968	763	834	1,597
1969	1,309	821	2,130
1970	1,248	845	2,093
1971	1,396	1,393	2,798
1972	1,203	1,966	3,169
1973	1,832	2,156	3,988
1974	2,676	1,048	3,724
1975	2,683	954	3,673
1976	2,424	1,189	3,613
1977	2,056	2,173	4,229

Source: Annex to Address of State (Pidato Kenegaraan), August 16, 1974 and August 16, 1978.

arrangements at the village level that provided mechanisms for sharing of employment and earnings opportunities are beginning to break down. The introduction of new agricultural techniques to improve productivity and modernize methods has tended to erode traditional village institutions and practices. Since the introduction of new technology makes some of the traditional institutions undesirable, while the growing population pressure increases the need for food and hence higher productivity, the prospect is that the strains on the social and economic structure of rural Java are likely to be strengthened in future. The following paragraphs indicate some of the changes that are occurring, and their impact on the extent and pattern of labor use.

(iv) Changing harvest systems

The traditional harvest arrangement for rice is the so-called bawon or open harvest system. The field is open to all-comers, who traditionally work with a small knife, the ani-ani, cutting each stalk individually. The rice is then tied into bundles and taken back to the owner's house, where it is divided into shares. Typically the harvester receives one-eleventh of the rice he or she has harvested. The use of the ani-ani is, of course, tremendously labor intensive and permits a large number of people to participate in the harvest.

More recently tebasan or contract harvesting has gained in popularity, replacing the bawon harvest. Under this system, the crop is sold just before the harvest to a middleman, the penebas, who then assumes responsibility for harvest operations. Typically, tebasan is less bound by the social conventions that govern a bawon harvest, and instead of permitting free entry, the penebas will often employ a team of harvesters of his own, who move to another field after the harvesting is finished. Under the tebasan system, the more efficient sickle is used rather than the ani-ani.

The tebasan system offers certain output benefits. For example, with no open harvest system, the larger number of people working in the fields can cause considerable damage to the crop, while transport and other losses between the field and the house of the farmer can also be costly. ^{1/} However, apart from this small gain, the farmer, more importantly, stands to retain a greater share of his crop by selling to the penebas because of the penebas' lower cost of harvesting. The penebas generally pays his team a wage rather than a harvest share, and as they use sickles, they are able to harvest at a lower cost than with the ani-ani under the bawon system. This means a smaller proportion of the crop is required for harvesting costs and a larger share of the harvest remains to be divided between the farmer and the penebas. On the other hand, the share of the harvest laborers is reduced.

The switch from bawon to tebasan clearly has important distributional implications as the tebasan harvest involves fewer people than the

^{1/} See Utami and Ihalau "Some Consequences of Small Farm Size," Bulletin of Indonesian Economic Studies, July 1973.

bawon system. Collier 1/, for example, reports on two harvests, a bawon harvest which involved 425 people per hectare and a tebasan harvest which involved only 194 people per hectare. Utami and Ihalau cite an example implying an even greater reduction. Thus many laborers who previously derived income from harvesting are now unable to do so, while the farmer and the penebas are both gaining from the changing system.

In view of its advantages to the farmer, it is surprising that the tebasan system which has been practiced in a small way in Indonesia for a considerable time, did not come to greater prominence sooner. It appears, however, that only in the 1970's has the system become more widespread, especially in parts of central and East Java. In a number of Javanese villages Collier 2/ observes that between 1968/69 and 1972/73 the proportion of farmers selling to a penebas increased from none or almost none to between 35 and 75%. The reason for this sudden shift is attributed to an interaction between institutional and technical factors. The introduction of high yielding varieties was concurrent with the decline of bawon, and may to some extent have been a causal factor. The short stalks of the HYVs makes them more difficult to harvest with the ani-ani. The higher yielding varieties are naturally more attractive to penebas since the wage cost of harvesting a given area is more or less the same regardless of the rice yield of that area. Moreover, the penebas reportedly prefer HYV rice because they can estimate the yield with greater certainty than for unimproved varieties, thus reducing their risk in buying before the harvest. It might also be added that the shift to HYV by a farmer is also indicative of a more commercial approach to agriculture, and this would in turn be compatible with a shift to contract harvesting.

An important element in understanding the working of the rural labor markets is the so-called patron-client relationships between employer and employee, or farmer and laborer. Such relationships serve as a means of ensuring a regular source of labor for the employer and a regular source of income for the employee. The strength of the relationship depended naturally on the extent and duration of any periods of possible employment but many other factors such as village relationships are also important.

One advantage of the penebas is his better position in forming patron-client relationships, which can be directly related to the use of high yielding varieties of rice. Traditional varieties tend to be planted at around the same time and hence to come to maturity at the same time. The demand for bawon harvest labor would be very seasonal. With the high yielding varieties on the other hand it is possible to plant at quite different times so that the harvest season is more extended and the demand for harvest labor less seasonal. Moreover, to the extent that the adoption of HYVs is accompanied by improved irrigation, there may be scope for double cropping, and hence an additional demand for harvest labor. These factors are a major advantage to the penebas, especially when combined with the technical

1/ Collier, "Agricultural Evolution in Java" (draft), December 1976.

2/ Ibid., p. 81.

advantage of the sickle because he can recruit and keep together a stable work force of harvesters for a longer period. The penebas therefore has a much stronger patronage because of his ability to offer a longer period of employment, while those laborers whom he employs will gain relatively greater incomes, increasing their dependence on the patron. On the other hand, employment opportunities for others are lost in the process.

(v) Mechanical pounding and hulling

One of the most widely reported structural changes of recent years has been the rapid shift from hand pounding of rice to mechanical milling. As recently as 1971, according to Timmer, ^{1/} about 80% of Java's rice crop was hand pounded either for subsistence consumption or for local sales. By 1973 "certainly less than 50% of the crop and "maybe as little as 10%" was Timmer's estimate of the extent of hand pounding. This estimate was based on the imports of mechanical hullers as well as the obvious visual observation that such a large change would facilitate.

Many reasons are given for this rapid shift but the most convincing is perhaps the reduced costs that a small mechanical unit offers as compared with hand pounding under almost any economic conditions or set of relative wages/prices. Even if the labor of the pounder, usually women, is assigned no value, mechanical milling is preferable because of the significantly higher extraction rate and the better quality of rice produced by mechanical units. It is therefore not surprising that their spread has been rapid.

The impact of the new methods of milling on the pattern of labor use has undoubtedly been substantial. Under the simplest technique of hand pounding about 150 kg. of stalk rice can be pounded by a person a day, producing 95 kg. of rice. For a crop of the order of 20 million tons which has been the norm since 1973, about 133 million mandays would be required, or around 450,000 manyears equivalent (though in fact very few women would work year round as full-time pounders). A comparable crop milled entirely by the small rice mills that now abound in Java would on the other hand require much less labor, perhaps only a little over half the labor needed using hand pounding.

But it is questionable whether the decrease in employment as a result of changes in milling technique have been as dramatic as the above figures suggest is theoretically possible. Some portion of the crop--but probably less than 20%--has been milled mechanically for a considerable time, for example, in large mills serving Jakarta or special government needs. These earlier mills tended to be larger and owned by urban traders. With the advent of small mechanical mills, throughout the countryside, some business may even have been taken away from the millers in the city, thus adding slightly to employment opportunities in the rural areas. Of these a somewhat greater proportion would probably be made up by full-time workers. It is also likely that a large number of those employed in mills would be men, whereas the hand pounders are mostly women.

^{1/} C. Peter Timmer, "Choice of Technique in Rice Milling in Java", Bulletin of Indonesian Economic Studies, Vol. IX, No. 2, July 1973.

In any case, however, the reduction in labor input into rice milling cannot be taken to imply a corresponding decline in the economic welfare of those households previously supplying hand pounding labor. Many, if not most of those households, have the option to continue with hand pounding of part or all of their rice crop at least for their own use if it pays them to do so. (Even now the transition to mechanical milling is not yet complete and hand pounding can still be seen in many parts of Java as well as the other islands.) Insofar as the movement to mechanical methods reflects such a choice of alternatives it represents a welcome change in which productivity gains are captured by the household in the form of higher rice output, the release of household labor for other productive purposes or simply relief from the drudgery of daily hand pounding to meet the family's rice needs.

(vi) Hand tractors

Mechanized land preparation has recently gained a modest popularity in Indonesia, although there is no reliable estimate of the extent of their use. Potentially hand tractors offer cost reductions as compared with hand preparation of the soil, and this is hastening their spread. They also reduce dramatically the labor input required to cultivate a given area, or alternatively put, allow a given field to be completed much more quickly than would be the case if preparation were by hand. This is an important factor in some areas in West Java where the soil needs to be prepared quickly if a second crop is to be planted. The increase in mechanical power naturally depresses the demand for labor in this activity.

Apparently tractors have been in use for at least ten years in some areas, 1/ but their use has so far taken only a modest hold. Given the wide range of technical and economic conditions in Indonesia, or even within Java, the feasibility or profitability of tractor use varies considerably. Outside Java, in areas where labor supply may become a constraint at certain critical parts of the season, the use of tractors permits an increased area to be cultivated, while in Java, where land availability is more or less fixed, the use of tractors becomes feasible only in such circumstances as, for example, where a second crop can be fitted in by using tractors, where labor is particularly expensive, or where a farmer has access to sufficient land that he can make reasonably full use of the tractor. The relative cost of tractors is dependent to a large extent on the foreign exchange cost relative to domestic prices. As inflation in Indonesia has been more rapid than in the industrial countries which supply the tractors and their components, the fixed exchange rate has tended to improve the relative profitability of tractors until the recent devaluation. 2/

In the present context, the reason for the spread of tractors is of secondary importance to the fact that they are becoming more widely used

1/ Collier observed Padi-tractors in Krawang as long ago as 1968.

2/ See R.S. Sinaga, "Implications of Agricultural Mechanization for Employment and Income Distribution: A case Study from Indramayu, West Java," Agro Economic Survey, Rural Dynamics Series No. 2, April 1978.

and are in the process of displacing a certain number of laborers, and having some impact on the distribution of job opportunities and incomes. In an extensive examination of the operation of tractors, R.A. Morris 1/ demonstrates that the reduction of labor input will be very large, ranging up to almost 90% with the largest tractors presently available, though probably around 78% for the smallest and commonest tractor, equivalent to a reduction from around 55 mandays per hectare to 12 mandays. Tractors have not yet become widespread except in certain areas, such as Krawang and Subang Kabupatens in West Java, but should their use become more widespread, the implications for labor demand will be important. It has been noted earlier that 90% of the rice crop is now mechanically hulled as compared with almost completely hand-pounding a decade ago. If the use of tractors were to spread to 90% of the land in Java, the resulting loss of jobs would be equivalent to well over a million full-time manyears.

While such extrapolations are less than satisfactory, since such a major adjustment could not be achieved except with adjustments in other areas of the rural economy, the illustrative figure does imply that the adoption of tractors is an important new development with a major potential impact on employment. The distributional implications are also profound. To date it has been found that those farmers most able to take advantage of tractors are those with larger farms. As a minimum, Collier found in Subang Kabupaten 2/ that a farmer needed to own three hectares of land and have control over a further eight hectares before a profitable level of utilization could be achieved. Moreover, it has been observed that access to credit to purchase a tractor is rarely, if ever, available to the small farmer or landless laborer, even though they might with careful contracting be able to work on enough land to justify ownership. Just as ownership of mechanical hullers was restricted to the group of larger land owners or rice traders with access to credit, so the ownership of tractors is likely to be equally concentrated. The small number of farmers owning more than three hectares would apparently impede the spread of tractors, but it should be noted that in the past, contractual arrangements for plowing between land owners and kerbau (water-buffalo) owners have been prevalent. There is therefore an established framework for contractual plowing which could hasten any trend.

(vii) Land holding and the new technology

In the Indonesian context, access to capital, whether in the form of land or some other asset, is a major determinant of the productivity of an individual's labor. In agriculture this is no less true than in other sectors, with land being the most critical. Documentation of land ownership patterns is relatively scarce, and of land transfers almost nonexistent.

1/ R.A. Morris, The Potential Impact of Mechanical Land Preparation in the Indonesian Small-Holder Rice Production Sector, 1975.

2/ William L. Collier, Jusuf Colter, and Chaerul Saleh, Observations on Recent Rice Problems at the Farm Level in Subang Kabupaten, Research Note No. 12, December 1972, IPB.

The written literature contains almost no aggregate quantitative information, though there have now been two agricultural censuses in 1963 and 1973 which provide some information on land holding. These indicate almost no change in the relative distribution of land holding over that period, though population pressure reduced the average farm size slightly. Most land is owned by small farmers having less than one hectare of land, but even though land ownership is widely spread, the number of farm owners in 1973 was only equal to about 50% of the agricultural labor force during the slack season, indicating a high proportion of landless laborers.

In view of the importance of land ownership or at least control over land for income distribution, recent reported developments regarding changes in land ownership take on considerable significance. Recent observations at the village level report a high rate of land sales, often to people outside the village, with a consequent loss of control over the land. This is furthermore reported to be associated with a greater commercialization of agriculture and the increased profitability resulting from shifts to techniques that may be labor displacing such as the shift to tebasan, the use of sickles, and mechanical land preparation which are each less costly than alternative methods.

Reports from villages also suggest that land transfers may be linked with the structure of risks involved in the modernization of agriculture. In using the traditional varieties of rice, farmers incur relatively less risk than in adopting the high yield varieties. The input investment at the beginning of the season is considerably less with the traditional varieties. The returns at the end of the season are of course higher, on average, from the high yielding varieties, but are by nature uncertain. In the event of a crop failure, many small farmers who are already living barely at the margin of subsistence may be unable to meet their debt obligations other than through the drastic alternatives of leasing, mortgaging or even selling land--an almost irreversible step, which relegates the farmer to the ranks of the landless, and may deprive him of the use of his most important asset. The effect of this risk is not evenly distributed between land owners of different sizes. A larger farmer may, because of his greater wealth and possibly his greater access to credit, be able to avoid the alternative of selling his land. Subdividing or share-cropping land may be feasible as a means of reimbursing debts while the farmer still retains ownership and control over most of his fields.

Another aspect of risk involved in the high yielding varieties has become apparent in recent years, namely the wereng pest which destroyed a considerable part of the rice harvest in West Java and is difficult to control. Although this is a specific instance, it provides a good example of the risks a farmer takes in using new technology on his land. The high yielding varieties proved most susceptible to the wereng, which has long been known in Indonesia but was rarely a source of major crop damage on a wide scale while the traditional varieties were being cultivated. The new varieties tend to mature at different times, which permits the wereng to move from field to field. When most fields in an area are cut at roughly the same time as with the traditional varieties, the wereng's chance of survival is much reduced.

There is insufficient evidence to conclude that crop damage from the wereng is causing widespread bankruptcy and land sales, though it has surely contributed to such trends in the areas where it has struck. The example does serve to indicate that the structure of risks accompanying the process of agricultural development will have redistributive effects and can be expected to result in significant changes in the structure of agricultural employment and incomes.

Non-Agricultural Employment in Rural Areas

The picture that emerges from the many structural changes occurring within the agricultural sector is that there are many pressures tending to displace agricultural workers and to reduce the demand for agricultural labor. Outside Java, the increasing cultivated area may be sufficient to offset any internal structural changes that reduce employment, but in Java the lack of new land and the limits to increases in the intensity of cultivation make it almost inevitable that the growth of the agricultural sector will be accompanied by slower rates of labor absorption.

The process of modernization, and institutional and technical changes within agriculture have had an effect not only on the growth of the agricultural work force, but also on its composition. There is a discernible increase in the number of landless or almost landless laborers, who must rely to an increasing extent on the market for unskilled labor as the main determinant of their incomes. This is illustrated by the trends apparent in the various population and agricultural censuses. The number of households in the rural areas increased from 16.6 million in 1961 to 21.7 million in 1976, an average rate of increase of 1.8% annually or 330,000 new households. On the other hand, the number of farms 1/ increased from 12.3 million in 1963 to 13.9 million in 1973, an average rate of increase of only 1.2% annually. At a conservative estimate, therefore, the number of rural households without access to land, either ownership or tenancy, is increasing at an annual rate of over 3%. If this trend has continued, in 1976 there would have been almost 7 million rural households without significant landholdings as either owners or tenants.

A less conservative estimate of the growth of "landlessness" can be derived from figures in the Intercensal Population survey on the area cultivated by agricultural households defined as those with at least some income from agricultural activities. These data show that over half of agricultural households in rural areas cultivate less than 0.3 hectares, and almost 60% less than 0.5 hectares of land. On this basis it would seem that there are 10-12 million rural agricultural households who might be classified as landless in the sense that they do not have access to cultivated areas of sufficient size to provide even the potential for minimal employment and income needs. In fact only 12 million rural households report agriculture as their sole source of income and only 9 million of these report per capita consumption expenditures over Rp 2,000 per month.

1/ Greater than 0.1 hectare.

All this underscores the heavy and growing dependence of rural households on participation in labor markets to provide additional sources of income, especially in the non-agricultural sectors. Although two-thirds of rural households report that they depend primarily on agriculture for their incomes, almost 17% of these supplement their incomes from non-agricultural sources. In all some 45% of rural households derive at least part of their income from activities outside of agriculture with over 25% wholly dependent on non-agricultural incomes. While separate figures for Java are not available, the corresponding percentage there would undoubtedly be substantially higher.

The large and growing importance of non-agricultural employment in rural areas makes the lack of detailed information about the specific types of activities involved particularly troublesome. From the distribution of the primary sector of employment of rural workers they appear to be heavily concentrated in the trade and service sectors which together account for almost two thirds of rural employment outside agriculture (Table 2.9). But manufacturing contributes a substantial fraction, over one quarter, much of which must be in extremely small enterprises, the products and characteristics of which are largely unknown.

Table 2.9: COMPOSITION OF NON-AGRICULTURAL EMPLOYMENT
IN RURAL AREAS, MARCH 1976

	Male	Female	Total
Mining and Manufacturing	21.8	31.5	25.8
Construction and Utilities	9.4	0.5	5.8
Trade and Finance	31.9	49.2	39.0
Transport and Communications	8.1	0.2	4.8
Services	28.8	18.6	24.6
Total Non-Agriculture <u>/1</u>	100.0	100.0	100.0

/1 Excludes rural employed whose sector of employment is not known.

Source: Appendix Table A-13.

The search for alternative employment by the rural population is not, of course, restricted to the rural areas; migration between urban and rural areas, permanent, temporary and seasonal, adds to the complexity of

the Indonesian labor market interrelationships, especially on Java where the availability of transport and the proximity of urbanized areas make it feasible for rural workers to look to urban labor markets for employment opportunities.

With increasing numbers of rural households dependent for their livelihood on the sale of labor services, the course of wages obviously becomes an increasingly important determinant of rural incomes and standards of living.

Wages and Earnings in the Rural Areas

The developments in the agricultural sector clearly point to a relative decline in demand for agricultural labor over time, even though an increasing number of people are participating in the sector. The sketchy information on wage levels in rural areas does not, however, indicate a decline in real wages. Some of the available indexes even suggest a modest increase in laborers' wages as well as in the earnings of farmers.

No general wage index for rural areas is prepared by the Government of Indonesia, so all indicators are subject to limitations of coverage, definition, consistency, etc. but only fragments of information are available. The broadest coverage refers to agricultural estates where information has been gathered for a considerable period regarding levels of employment and wages paid. For permanent workers, the information may be quite reliable though unfortunately for temporary workers who appear to be gaining in numbers more rapidly, information is collected only on earnings and numbers but not on mandays worked, thus making it impossible to estimate average daily earnings for this critical group. However, the cost to the employer of wages in kind are included in the earnings figures.

The trend in real earnings on estates differs between the two areas in which most of the estates are concentrated, namely Java and North Sumatra, and also between earlier and later time periods. It is apparent that from the late 1960s until the early 1970s, real wages of estate workers in all areas grew appreciably, though on Java the growth was apparently more rapid. Since then the upward movement has slowed: the real earnings of tea estate workers in Java increased by 4.5% between 1971 and 1975, while those of their counterparts in rubber stagnated. Rubber workers' real earnings in North Sumatra fluctuated around a declining trend while real earnings in North Sumatra tea estates rose by 20% (Table 2.10).

For workers off estates, wage data are almost nonexistent. Village level observations on Java collected by the Agro Economic Survey ^{1/} suggest a modest increase in real wages over the last ten years, but that experience in different villages varies considerably. Although the overall trend of these data is slightly upwards there are individual villages where the real wage appears to have declined over the 1967-1977 period.

^{1/} An Inter-Ministrial Research Organization for Policy Analysis on the Agricultural Economy of Indonesia.

Table 2.10: INDEXES OF REAL WAGES OF PERMANENT PRODUCTION WORKERS ON RUBBER AND TEA ESTATES, JAVA AND NORTH SUMATRA, 1966-1975

	Java ^{/1}	North Sumatra ^{/2}
Rubber		
1966	78.8	94.5
1967	85.8	74.6
1968	75.1	86.0
1969	100.4	88.7
1970	99.9	124.2
1971	100.0	100.0
1972	101.0	116.9
1973	92.9	105.2
1974	89.0	90.6
1975	100.0	106.3
Tea		
1966	66.2	97.0
1967	74.9	78.8
1968	40.7	77.6
1969	57.1	85.7
1970	92.4	97.4
1971	100.0	100.0
1972	100.6	116.5
1973	77.9	106.6
1974	86.4	110.3
1975	104.5	120.2

^{/1} Index of average earnings deflated by price index of 12 food articles in rural markets, Java and Madura.

^{/2} Index of average earnings deflated by cost of living index in Medan.

Source: Earnings calculated from BPS, Wages Paid on Estates, 1966-1975.

It is also difficult to judge how systematic any change in wages may have been over time as there have been marked increases and decreases from year to year within the period. The observed real wages are deflated by the retail price of rice in the village, and the use of a single commodity for deflation may contribute to the irregularity of the series, which in any case suffers from a relatively small number of observations. The choice of the price of rice as the deflator may also overstate even the modest increase in wages that actually occurred, as Government policy efforts to stabilize rice prices resulted in a slower rate of increase than for most other food prices in the rural markets of Java. It is clearly impossible to draw any general and firm conclusion from the data presented, though it may be safe to say that real wages in the rural areas of Java did not decline, but that any increase has been very small.

Table 2.11: INDICATORS OF CHANGES IN REAL AGRICULTURAL WAGES IN JAVA

	<u>Real wages^{1/} (Kg rice equivalent) in:</u>		<u>Indexes^{2/} of wages for:</u>	
	<u>Spading</u>	<u>Weeding</u>	<u>Hoeing</u>	<u>Weeding</u>
1967	-	-	99	100
1968	1.0	-	87	98
1969	1.0	0.6	89	99
1970	1.0	0.7	85	102
1971	1.0	0.6	100	100
1972	0.7	0.6	97	96
1973	-	0.4	104	107
1974	-	-	118	122
1975	-	-	125	118
1976	-	-	123	121
1977	-	-	111	109

1/ Unweighted average of money (excluding meals) wages in 15 Javanese villages deflated by the retail price of rice.

2/ Unweighted average of money wages (excluding meals) in 6 West Java villages deflated by retail price of milled rice.

Source: Makali and Sri Hartoyo, "Perkembangan Tingkat Upah dan Kesempatan Kerja Buruh Tani di Pedesaan Jawa," Agro-Economic Survey, Rural Dynamics Series No. 4, June 1978, and Benjamin White, "Political Aspects of Poverty, Income Distribution and its Measurement: Some Examples from Rural Java", (Draft) prepared for the Asia Society Seminar on "New Measures for New Development Goals in South and Southeast Asia" Bogor: November 1977, Table A-1.

The only major source of information on non-agricultural rural wages is the series on wage rates of construction labor collected in connection with the Kabupaten public works program (Table 2.12). This series does not, however, provide systematically collected data on wages actually paid, but consist of estimates by local officials of the wage levels prevailing in their areas for particular types of labor employed on Kabupaten public works projects. The estimates are used in budgeting expenditures on public work projects; the actual hiring and payment of the labor employed is done by the construction contractors. In spite of the statistical short-comings and uncertainties surrounding these wage series they can be expected to reflect, if only imprecisely, general movements in local wage levels and rural-urban wage rate differentials for construction labor.

The pattern revealed in these series suggests rising real wages in the rural areas of Java, the northern provinces of Sumatra and the southern provinces of Sulawesi. Real wages appear to have declined in North Sulawesi, Kalimantan and the central and southern provinces of Sumatra. In contrast the figures for wages in urban areas suggest declining real wages Outside Java but stable or rising levels on Java with the notable exception of Jakarta. Despite the weaknesses of the data it is significant that the series reveal no tendency for decreased real wage levels in rural Java. Moreover, from these figures there seems to be little evidence of sizeable positive differences between wages for unskilled construction labor in urban and rural labor markets. This will be taken up further in the following section. Finally, the figures confirm the existence of substantial money wage differentials between provinces but suggest that these have been declining in recent years.

The general impression conveyed by the fragments of information on wage levels and trends is one of diverse and freely functioning labor markets in which wages are responsive to underlying changes in the demand and supply of labor. To the extent that this is so, it adds significance to the fact that the rapid increases in employment of recent years have been accomplished with no discernible downward trend in real wage levels, even in the densely populated areas of rural Java. From the evidence at hand, despite the relative decline in demand for labor in Javanese agriculture and the displacements associated with structural changes in agricultural technology and institutions, the demand for labor in non-agricultural activities appears to have expanded sufficiently to avoid any general and substantial decline in real wages on Java.

The observation that the general level of real wages in the rural areas of Java has been maintained cannot, however, be translated into a judgement that there has been no deterioration in the standards of living of some rural workers. In the first place, as remarked upon earlier, for some households the increase in labor force participation may represent additional efforts by members of rural households to maintain incomes in the face of declining demand. More important is the likelihood that certain groups less well placed to adapt to the shifting demands for labor have experienced absolute decline in labor income and economic welfare despite

Table 2.12: MONEY AND REAL WAGES IN RURAL AND URBAN AREAS FOR UNSKILLED CONSTRUCTION LABOR
(INPRES KABUPATEN PROGRAM), 1971-1978

	Rural		Urban		Rural		Urban	
	Nominal Daily Wages 1971/72	1977/78	Nominal Daily Wages 1971/72	1977/78	Real Wages/L 1977/78 (1971 prices)	1971/72 - 1977/78 -- (% change)--	Real Wages/L 1977/78 (1971 prices)	1971/72 - 1977/78 -- (% change)--
	-----rupiah-----		-----rupiah-----					
Aceh	160	501	175	425	189	18.1	151	-13.9
N. Sumatra	293	514	258	483	..	..	161	-37.8
W. Sumatra	182	482	183	358	220	20.9	121	-33.7
Riau	320	630	250	450	273	-14.7	184	-26.5
Jambi	350	560	250	500	253	-27.7	209	-16.3
S. Sumatra	262	419	250	425	149	-43.1	140	-43.9
Lampung	183	400	200	500	149	-18.6	172	-13.8
Bengkulu	250	467	250	500	169	-32.4	..	..
Jakarta	n.a.	n.a.	260	400	n.a.	n.a.	131	-49.7
W. Java	155	476	150	531	165	6.5	188	25.1
C. Java	95	319	94	333	111	16.8	130	37.8
Jogyakarta	86	256	85	250	89	3.5	84	- 1.3
E. Java	117	418	111	400	145	23.9	148	33.5
Bali	123	328	n.a.	n.a.	115	- 6.5	n.a.	n.a.
W. Nusa Tenggara	130	350	n.a.	n.a.	124	- 4.6	n.a.	n.a.
E. Nusa Tenggara	94	307	n.a.	n.a.	120	27.7	n.a.	n.a.
W. Kalimantan	325	717	300	700	..	..	275	- 8.5
C. Kalimantan	370	601	350	600	..	..	272	-22.4
S. Kalimantan	194	422	250	500	..	..	175	-29.8
E. Kalimantan	375	..	375	..	..	..	..	..
N. Sulawesi	297	505	250	525	216	-27.3	182	-27.1
C. Sulawesi	138	475	n.a.	n.a.	213	60.2	n.a.	n.a.
S. Sulawesi	133	349	112	350	147	10.2	140	25.0
S.E. Sulawesi	100	338	n.a.	n.a.	127	27.0	n.a.	n.a.
Maluku	..	500	..	500	..	..	179	..
W. Irian	..	533	n.a.	n.a.	..	..	n.a.	n.a.

/1 Nominal wages deflated by price indexes for rural markets (9 essential commodities).

/2 Nominal wages deflated by cost of living indexes for selected cities in the various provinces.

Source: Data supplied by BAPPENAS, INPRES DATI II.

stable or slightly rising average levels of real wages. All this is merely to emphasize that any characterization of Indonesia's employment problems that gives attention only to the aggregates and averages would be incomplete and misleading in its neglect of the actual experiences of particular groups of workers and their families.

III. EMPLOYMENT AND WAGES IN URBAN LABOR MARKETS

Growth and Pattern of Urban Employment

As should be evident from Table 1.6, it is not possible to give a precise estimate of urban employment growth. It seems, however, that urban employment has grown at a rate slightly under that of rural employment between 1971 and 1976, 3.8% compared to 4.8% per year. ^{1/} Despite this fairly rapid rate of employment growth--substantially above the 2.6% growth rate of the urban population during that period--is somewhat slower than the estimated growth of the labor force, implying as noted earlier that open unemployment in urban areas may have increased to perhaps as much as 5.5 or 6.0% in 1976 compared to 4.8% in 1971.

So far as can be determined from the available figures, there has been remarkably little change in the sectoral pattern of urban employment since 1961 even though the number of employed in urban areas has grown by about two-thirds, as shown in Table 3.1. The apparent decline from 1961 in the percentage of manufacturing employment is uncertain because of the different definitions of employment used in the 1961 census. But in any case it is clear that the trade, transport and service sectors have consistently accounted for 65-70% of total urban employment.

The decline or stagnation in the share of manufacturing in urban employment during a period when the proportion of employed in manufacturing in rural areas was increasing may reflect the "spillover" of manufacturing activities into areas immediately adjacent to the cities. ^{2/} The 1971 Survey of Large and Medium Manufacturing Establishments indicates a pronounced concentration in and around urban centers--66% of the large scale and 60% of the medium scale firms. Small scale enterprises, on the other hand, are much more widely dispersed; the 1972 Survey of Small Scale and Home Industries found that less than 20% of total employment in these enterprises was in and around urban areas.

The seasonal differences in the sectoral distribution of employment between March and October 1976 suggest that the trade and manufacturing sectors are the principal net sources of seasonal workers to agriculture. While it may be somewhat surprising at first to find urban manufacturing workers playing this seasonal role, it is less so when it is recognized that much manufacturing employment is in extremely small enterprises many of which may be operated on a casual or intermittent basis.

^{1/} Alternative estimates of employment in 1971 yield annual growth rates of 2.2% for urban areas as compared to 3.0% for rural. For details, see Table 1.6.

^{2/} This urban spillover explanation was first given by R. M. Sundrum, "Manufacturing Employment 1961-71," Bulletin of Indonesian Economic Studies, March 1975.

**Table 3.1: INDONESIA: PERCENT DISTRIBUTION
OF EMPLOYED PERSONS IN URBAN AREAS**

	Sept. 1961	Sept. 1971	March 1976	Oct. 1976
Agriculture, Forestry, Fishing	11.9	10.8	13.0	10.7
Mining and Quarrying	0.5	0.8	0.3	0.3
Manufacturing	16.2	12.0	9.8	12.7
Construction	6.0	5.2	6.6	4.7
Utilities	0.9	0.5	0.3	0.3
Trade, Financing, Insurance	20.9	27.8	27.8	30.2
Transport, Storage & Communication	9.9	9.3	8.1	8.6
Services	33.7	33.6	34.1	32.5
	100.0	100.0	100.0	100.0
Total*	(4,297,860)	(5,796,476)	(7,217,682)	(7,000,000) ^{/1}
		(6,256,000) ^{/2}		

*Total includes unknowns.

^{/1} Total employed result from projecting March 1976 Population Estimates and applying labor force and employment ratios from Sept.-Dec. 1976 Labor Force Survey. See Appendix p. 3.

^{/2} See footnote Table 1.6.

Sources: 1961 Population Census, Series SP II, Table 8.
1971 Population Census, Series C, Table 7.
1976 Intercensal Population Survey, No. 2, Table 9.
1976 National Labor Force Survey, Table 14.3.

The 1977 Bank Report on the Industrial Sector ^{1/} estimated total employment in manufacturing firms with 5 or more employees at about 1.25 million. Even if as much as 35% of this total was in urban areas (a lesser proportion is suggested in the 1972 industrial survey), this would mean that about 215,000 manufacturing workers, or roughly one third of the estimated 650,000 total employment in urban manufacturing were employed in enterprises with fewer than 5 employees. There is some evidence that the relatively slower growth in urban compared to rural manufacturing employment reflects the slower rate of employment increases in the larger scale enterprises. Although the data from the 1971 and 1975 surveys of manufacturing are not wholly comparable they suggest that the growth in employment in enterprises with more than 5 employees between those years amounted to about 5.5% per year. Estimates from the 1971 Census and 1976 Intercensal Survey indicate an annual rate of growth in total employment in manufacturing of almost 8% (8.5% in rural areas). The statistical evidence is too slight to warrant definitive conclusions but it nevertheless suggests a disproportionate growth in extremely small and very likely marginal manufacturing enterprises which may serve a valuable function in providing primary or supplemental incomes to large numbers of workers but probably cannot be considered a solid foundation for the future expansion and development of a modern manufacturing industry in Indonesia.

Some confirmation of the rapid growth in recent years, of extremely small enterprises can perhaps be read into the apparent increase in the proportion of non-wage employment--own account workers, family workers and employers in the urban areas (Table 3.2). But a similar increase in this proportion is not observable in rural areas where it seems to have remained virtually unchanged. In any case, a pronounced decrease in the ratio of employees to employers seem to be the result of counting many own-account workers as employers in 1976. Inferences regarding changes in the structure of industry can hardly be based on such movements given the nature of the data.

Despite the importance of own account workers and unpaid family members in urban employment, employees working for wages or salaries clearly predominate in urban labor markets with nearly 60% of those employed in urban areas in 1976 classified as employees. Excluding the trade sector (where wage employment amounted to less than one sixth of total employment) this proportion rises to almost 83% of urban non-agricultural employment. With this degree of dependence on wage employment, it is obvious that the prime determinant of the economic well being of urban workers is the trend and structure of urban wage rates.

Urban Wage Levels and Differentials

The great diversity in the composition of wages and the practice of relating a significant proportion of wages especially those in kind, to the family status and family size of the employee add to the difficulties of quantifying wage levels and differentials. It is a fairly widespread,

^{1/} World Bank, "Problems and Prospects for Industrial Development in Indonesia" Report No. 1647-IND, Volume I, August 25, 1977.

Table 3.2: INDONESIA: DISTRIBUTION OF EMPLOYED PERSONS IN URBAN AND RURAL AREAS BY EMPLOYMENT STATUS, 1971 AND 1976

	<u>September 1971</u>		<u>Sept.-Dec. 1976</u>	
	Urban	Rural	Urban	Rural
Own Account Worker	26.5	41.5	23.8	22.3
Employer	3.9	3.8	8.4	20.0
Unpaid Family Worker	8.0	26.2	9.5	28.6
Employee	61.6	28.5	58.3	29.1
<u>/1</u> Total	100.0	100.0	100.0	100.0

/1 Total does not include those employed as social workers in Sept.-Dec. 1976.

Sources: Calculated from 1971 Population Census, Series C, Tables 9.1-9.9; and 1976 Labor Force Survey, Sept.-Dec. 1976, Tables 12.3 and 12.6.

but by no means universal practice, especially among large enterprises, ^{1/} to combine cash wages with certain cash and in kind allowances. A small proportion of large enterprises provide family, housing, transportation, cost of living allowances, etc., while very few small enterprises pay such allowances.

Government civil servants and employees of government commercial enterprises receive both family allowances and payments in kind called the rice allowance, in addition to the basic salary of the employees. In government departments the rice allowance since April 1, 1977 has been given only to the employees of the lowest four grades, but the family allowance at 5% of the salary for wife and 2% for each child with a maximum of 3 children, is provided to all employees of all categories. While the basic salaries, rice and family allowances have recently been made virtually uniform in the various government departments, there is considerable diversity in these regards among various government commercial enterprises. In both government departments and commercial enterprises the proportion enjoying free or subsidized housing and transportation is quite small, and is usually confined to employees in senior grades.

The complicated wage systems of relating wages to the "needs of the worker," especially through family-based payment in kind, evolved in Indonesia after independence and reflected a desire to incorporate social considerations into wage setting. However, in recent years not only has the importance of payments in kind decreased, but the composition of wages seems to have begun to be simplified in many cases. Many large employers as well as most small ones in urban areas pay only cash wages without any allowances related to the family size of the worker.

Systematic documentation of wages even for the large-scale enterprises is virtually non-existent. Some broad indication of the wage levels, skill differentials, and urban-rural differences can be derived from the wage statistics collected in connection with the Kabupaten public works program (INPRES) despite their defects. The general impression conveyed by these data (Table 2.12 in the preceding section) is of rather wide inter-provincial differences in wage for unskilled construction labor in urban areas but of relatively small differences between rural and urban areas in the same province. Although we do not have data on general price levels for different areas, it is presumed that there are some inter-area differences in price levels. It is likely that differences in cost of living would reduce, but not eliminate, the regional real wage differences. Nevertheless the geographic pattern is generally in line with what might be expected on economic grounds in that the ordering in the reported wage rates corresponds

^{1/} Fifty nine percent of the 183 large manufacturing enterprises included in the "Survey of Wages and Salaries" conducted in 1973 by the Manpower Department (with ILO/UNDP) paid some wages in kind, mainly rice. Unpublished data for the survey of 1977 indicate that 35% of large enterprises in manufacturing paid some wages in kind.

in the main to what is known about the abundance of labor relative to demand. The higher wage levels in the Sumatra and Kalimantan provinces compared to the Javanese provinces are consistent with the pressure of labor supply on that densely populated island. Within Java, as well, the lower wage levels in Central Java and Jogjakarta reflect the comparatively depressed economic conditions in those provisions.

The pattern of urban-rural differentials for 1974/75 (Table 3.3 columns 1 and 2) presents a more complicated picture with urban wage rate lower than those in rural areas in 10 out of the 18 provinces. Even in those provinces where urban wages exceed rural wages, the difference is more than 25% in only three cases and is as much as 47% only for unskilled workers in West Kalimantan. Perhaps the only conclusion which can be drawn with a minimal degree of certainty is that the figures provide no evidence of a substantial gap between urban and rural wage levels for similar occupational categories. The absence of such a gap is consistent with a high degree of mobility, seasonal and otherwise, between rural and urban areas and the relative unimportance of institutional influences tending to maintain higher wage levels in urban areas.

On the basis of these data, the skilled/unskilled differential in construction appears to be fairly consistently about 40-60% in urban areas. The pattern is generally similar in rural areas. The construction skills included are masons, carpenters, road builders and other "tukang" of various types as well as foremen.

Data on occupational wage levels in other sectors are very sketchy. Some data were collected in wages and salaries surveys of the large-scale enterprises in manufacturing (November-December 1973) and in construction, transportation, mining and logging (November-December 1974). Since our main interest is in inter-sectoral wage differentials and differentials among various skill categories, data are presented in Table 3.4 for Java only in order to minimize the effect of inter-regional wage difference on the sectoral pattern.

The survey covered 152 large-scale manufacturing establishments. Survey coverage of the other sectors is not known, nor is it certain that all the firms surveyed were located in urban areas, but presumably the majority of them are. The large majority of the firms provided in addition to reported wages some other allowances, and payments in kind.

The wage data--presented in the form of averages of lowest paid workers, and averages of highest paid workers of different categories--indicate that the average minimum, not a legal minimum, wages of unskilled workers are about the same (a little over Rp 8,000 per month) in construction, mining and logging; and the same is roughly true of the average maximum wages of unskilled production workers in these sectors. The average minimum wage for unskilled production workers in transportation is considerably higher, while that in manufacturing considerably lower. The relatively higher wages

**Table 3.3: AVERAGE DAILY WAGE DIFFERENTIALS
IN THE INPRES KABUPATEN PROGRAM 1974/75
(Percentage)**

	Urban/Rural		Skilled/Unskilled	
	Unskilled	Skilled	Urban	Rural
1. Aceh	81.6	75.5	161.5	174.5
2. N. Sumatra	90.9	87.9	162.3	167.8
3. W. Sumatra	86.7	75.7	141.2	161.7
4. Riau	88.9	93.3	175.0	166.7
5. Jambi	96.2	68.5	100.0	140.4
6. S. Sumatra	119.5	106.8	142.9	159.7
7. Bengkulu	100.0	119.0	166.7	140.0
8. Lampung	107.3	93.8	140.0	160.1
9. Jakarta	-	-	157.1	-
10. W. Java	127.3	133.1	158.1	151.2
11. C. Java	99.4	107.6	189.4	175.1
12. Jogjakarta	129.0	124.5	150.0	155.5
13. E. Java	98.1	88.9	163.8	180.8
14. W. Kalimantan	146.6	109.8	150.0	200.3
15. C. Kalimantan	106.4	85.9	110.0	136.2
16. S. Kalimantan	122.3	105.3	125.0	145.3
17. E. Kalimantan	-	-	-	-
18. N. Sulawesi	91.7	97.1	145.5	137.3
19. C. Sulawesi	-	-	-	134.5
20. S. Sulawesi	94.8	89.7	175.0	184.8
21. S. E. Sulawesi	-	-	-	217.9
22. Bali	-	-	-	125.9
23. W. Nusa Tenggara	-	-	-	175.0
24. E. Nusa Tenggara	-	-	-	259.8
25. Maluku	100.0	107.1	166.7	155.7
26. Irian Jaya	-	-	-	132.4

Source: Calculated from J.A. Salim, Regional Wage Differentials (unpublished) as quoted in the BIES, No. 3, Vol. XI, November 1975.

**Table 3.4: JAVA: MONTHLY WAGES OF WORKERS OF VARIOUS CATEGORIES
IN SEVERAL LARGE-SCALE SECTORS
(Rupiah/Month)**

	<u>Nov-Dec, 1973</u>	<u>November-December, 1974</u>			
	<u>Manufacturing</u>	<u>Construction</u>	<u>Transportation</u>	<u>Mining</u>	<u>Logging</u>
	<u>Lowest Average</u>	<u>Lowest Average</u>	<u>Lowest Average</u>	<u>Lowest Average</u>	<u>Lowest Average</u>
1. Unskilled Production Workers	3,700	8,256	11,123	8,208	8,159
2. Semi-skilled and skilled production	5,200	11,424	15,741	17,327	14,812
3. Clerical Workers	10,800	11,909	14,739	18,165	16,692
4. Supervisors	9,800	17,477	30,167	31,475	21,900
5. Professional Workers	26,100	39,896	65,750	60,169	28,750
6. Managerial Workers	30,400	48,535	61,170	59,970	45,077

Source: Proyek Bersama, Results of a Survey undertaken by ILO and the Department of Manpower, Transmigration and Cooperatives. The Wage Survey for Manufacturing was undertaken in November-December, 1973, The Survey for other sectors was undertaken in November-December, 1974. (Original text in Bahasa, Indonesia.)

in transportation may be offset by relatively smaller allowances or may possibly reflect higher elements of skill among production workers in transportation than in the other sectors. The lower manufacturing wage is at least partially explained by the rise in the consumer price index of 33% between November-December 1973 and November-December 1974 when the wages of other sectors were surveyed. The differential between semi-skilled/skilled and unskilled is around 50% in all sectors. The lowest average wages of semi-skilled/skilled workers and clerical workers are fairly similar, except in manufacturing where clerical workers' wages are double those of semi-skilled/skilled production workers, largely because the latter have lower wages.

Limited as the data from these surveys may be, they again provide no evidence of substantial differentials between sectors in average earnings for similar occupational categories.

One sector for which more detailed data on wage scales are available is the government sector. In 1977 about 1.8 million persons were employed in government departments of which perhaps 1.0 million were located in urban areas--roughly 15% of total urban employment. The government wage scales do not follow occupational classification, however, but are set for different groups or grades with specified criteria regarding educational qualifications and experience. 1/

The Government has a basic salary scale for each grade and group, with automatic periodic increments. The basic scale which was introduced in 1968 has been completely changed for all groups in 1977, mainly in response

1/ The government employees have four grades I-IV which are classified into 17 groups; Ia through Id, IIa through IId, IIIa through IIIId, and IVa through IVe. These grades and groups have corresponding salary scales. The lowest group Ia normally requires completion of primary education - (6 years of schooling). Ib requires lower secondary education, i.e., 6+3 years of schooling. Group Ib employees after 4 years experience may move up to group Ic, and after a total of 8 years experience to group Id.

Employees appointed directly in Grade II are required to be High School Graduates, i.e., (6+3+3) years of schooling. A high school graduate with 4 years experience in IIa may move to IIb, with another 4 years experience to IIc and after a further 4 years experience to IId. However, candidates having higher education, i.e., college degree (15 years of schooling) may be directly appointed to Group IIb. Primary school teachers, and typists are usually in Grade II.

Employees in Grade III are usually required to have Bachelor's, or more frequently Master's degrees. Employees may be promoted from IIIa to IIIb after 4 years experience, and similarly for the next two groups up to Group IIIId. Positions in Grade IV are filled through promotions from Grades III on the basis of education and competence, and through a system of examination.

to very large increases in general prices and also to simplify some customary allowances paid to employees. The basic salary scale 1/ effective from April 1977 for 10 of the established 17 groups (including the bottom and the top) are shown in Table 3.5.

Although information is not available regarding the exact salary scales and allowances prevailing around 1974--the reference period for wage and salaries in other sectors mentioned earlier--it appears from some unpublished data of the Manpower Department that a government employee in the lowest grade Ia with a wife and two children earned over RP 13,000 per month, which is roughly comparable to monthly wages of semi-skilled workers in other large scale sectors such as construction and transportation. Also salaries of Government employees of such levels as typists did not vary widely from those in large-scale sectors. In the top grades, basic Government salaries were, and are considerably lower than those in comparable levels in business sectors, but there is a practice of medium-level and senior Government officials getting additional benefits from special honoraria for undertaking particular tasks and sitting on various committees.

Although the government-controlled commercial enterprises also use some systems of employment grades, the relation of educational levels to grade can vary widely between enterprises, and between enterprises and the Government. For example, a railway (Government enterprise) worker with only primary education could reach a much higher grade without acquiring further qualifications than he could in a government department. But it is also true that some government enterprises (or for that matter some large private enterprises) demand higher educational achievement for similar grade jobs. Banks, for example, usually employ university graduates in routine clerical jobs normally done by high school graduates in Government. By and large starting or average salaries by comparable grades are somewhat higher in these enterprises than in Government and their pay system is increasingly more comparable with that in private commercial enterprises than in Government.

The wage data considered so far have been drawn from the larger scale or organized sectors. Only bits and pieces of information are available regarding wages and earnings in the so-called urban informal sector,

1/ As of 1977, to the basic salary, some family allowances are added: 5% of salary for the wife, and 2% of salary for each child (up to a maximum of 3 children). Only grade I employees get a free rice allowance per month: 10 Kg of rice for the employee, 10 Kg of rice for wife, and 10 Kg of rice for each child (up to a maximum of 3). In case of illness of employees or their dependent family, the government is supposed to bear the cost of treatment and make some deduction from their salary. But actual medical benefit is reportedly not much. Subsidized or rent-free housing is available only to a few. The same is true of free or subsidized transportation which is obtained by those who are provided with official vehicles. The allowances and fringe benefits are reportedly fewer and less elaborate now compared to the earlier years.

Table 3.5: BASIC GOVERNMENT SALARY, EFFECTIVE APRIL 1, 1977
(Rupiah per month)

Grade/Group	
Ia	RP 12,000 - 24,600 ^{/1}
Id	RP 17,400 - 36,300
IIa	RP 21,200 - 47,600
IIb	RP 26,900 - 55,700
IIId	RP 29,600 - 63,200
IIIa	RP 34,100 - 74,900
IIIId	RP 39,800 - 87,800
IVa	RP 42,200 - 99,800
IVd	RP 50,000 - 114,800
IVe	RP 52,800 - 120,000

/1 Maximum in each grade from Ia through Id is reached after 21 years of service, and in other grades after 24 years of service.

Source: Badan Administrasi Kepegawaian Negara, Pelaksanaan Peraturan Gaji Pegawai Negeri Sipil - Tahun 1977.

including earnings of unskilled workers in the urban non-wage sector, and they refer essentially to Jakarta.

The Jakarta hawker's study 1/ of 1973, based on a sample of 1,000 hawking units (about 5.7% of total hawkers) found that net daily earnings (after deductions of costs of running the stock) of the interviewed hawkers varied between RP 100 and more than RP 5,000. 2/ Over three quarters had an income of less than RP 500/day, and almost 95% an income of less than RP 1,000/day. The average daily earning was RP 425 for an average working day of 8.9 hours (over 30% worked over 11 hours a day). For most of the hawkers interviewed, hawking is their only job.

The Jakarta Informal Sector study 3/ carried out in August 1975 surveyed over 4,300 heads of informal sector enterprises having 5,802 persons working in them. Only 5.5% of the enterprises (but 10.7% of the work force) were in manufacturing. Nearly 90% of the enterprises had only one person working in them. While nearly 2/3 of Jakarta's total labor force were employees according to the 1971 census, this survey found that over 80% of the informal sector's work force were either employers or self-employed: only 13% of the surveyed enterprises had paid employees.

While non-response rates on questions on wages were very high (only 5% of the enterprises gave information on daily wage rates), the resulting earnings estimates (Table 3.6), nevertheless, show remarkably little variation in the averages reported by informal enterprises in different sectors of activity. This is what one would expect in a labor market characterized by high mobility where enterprises are drawing from a common pool of labor. Moreover the daily wage averages fall close to the levels of unskilled earnings observed earlier in large scale enterprises.

Recent Trends in Urban Real Wages

Information that can be used to obtain some notion of the course of real wage rates over the past years is even scarcer than that on wage levels

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- 1/ "Hawkers in Jakarta," Volume 1: Literature Study and Hawkers Sample Survey, Atma Jaya Research Centre, Jakarta, March 1976.
 - 2/ Although the interviewers introduced the questionnaire through informal discussion with hawkers, it is uncertain whether the hawkers' suspicion that the interviews were connected with tax officers was entirely removed. Hence answers regarding costs and earnings should be treated with caution.
 - 3/ Hazel V. J. Moir, "The Jakarta Informal Sector", National Institute of Economic and Social Research (LEKNAS), Jakarta, 1977. The definition of informal enterprise is along the lines suggested in the ILO Kenya Report. Smallness, no fixed working days or hours, not covered by Government regulations are the essential characteristics.

Table 3.6: AVERAGE MINIMUM AND MAXIMUM DAILY WAGES IN SELECTED
"INFORMAL" ENTERPRISES, JAKARTA, 1975

Sector	Average Minimum	Average Maximum
	-----	-----
	Rs.	-----
Manufacturing	511	713
Construction	379	488
Transport	468	527
Trade	457	599
Services	474	593
All Sectors	468	611

Source: H.V.J. Moir, The Jakarta Informal Sector, National
Institute of Economic and Social Research (LEKNAS),
Jakarta, 1977, Tables 4-10.

and structures. Only the importance of the issue justifies the attempt to draw any conclusions from the skimpy data available from only three sources.

The series on construction wages from the Kabupaten INPRES program is one of these sources (Table 2.12). It shows a movement between 1971/72 and 1977/78 in real wages of unskilled workers in urban areas very similar to that reported previously for rural areas. Certainly the series offers little support for any claim of generally increasing real wage levels. Only three Javanese provinces and South Sulawesi show increases in real wage levels; declines appear in all the other provinces. Of course, these three Javanese provinces (West, Central and East) contain about half of Indonesia's urban population. But substantial increases in urban real wages in these provinces can hardly be reconciled with a 50% decline in real wages in Jakarta, as shown in the same table. Year to year fluctuations stemming from lags in wage adjustments to changing rates of inflation make any estimates of trends based on changes between any two single years over a relatively short period of time especially hazardous. It is fair to conclude that the data provide no evidence of any significant rise in real wage levels and suggest a trend in urban real wages similar to that found in rural areas, i.e. no firm evidence of sustained upward or downward movements.

A second source is a series on urban construction wages for the period 1972-77 collected by the Building Information Center (Pusat Informasi Teknik Pembangunan) of the Ministry of Works. These data are collected by interviewing larger contractors in the various cities, who supply actual wage rates for 15 classes of construction workers as well as prices of building materials. In each city 3 or 4 contractors are selected (not randomly), and interviewed monthly. Collected data are published quarterly. 1/ Daily wage rates reported for any quarter are averages of data for whatever months are available in that quarter. If, however, there are fewer than 3 respondents in a city, no wage data are published. This explains why no wage data are reported for many quarters. Despite the limited sample size for individual cities, limitations of statistical procedures, and large number of gaps in data, these data at least represent actual wage rates, and the whole exercise is taken seriously by the concerned agency. Although no definitive conclusion may be reached, these data are presented (Table 3.7) here because of the general paucity of available wage data.

Table 3.7 shows real wage indexes of unskilled construction workers from 1972 to 1977 in 5 major Javanese cities and 5 other cities in the outer islands. In the majority of these cities (including all 5 non-Java cities) real wage has declined to some extent. But given the year-to-year fluctuation common to all cities, this may not be interpreted as a sustained downward trend. Also the cities of Java (more important in terms of population) indicate no such trend. Semarang, Jogjakarta and Surabaya show no evidence of significant rise or fall in real wages. The interesting contrast is between the 29% fall in Jakarta and the 36% rise in nearby Bandung, and this conflicting evidence is hard to reconcile. Thus, these data also provide no firm evidence of any sustained rise or fall in real wages.

1/ In "Daftar Harga Satuan Bahan Bangunan Di Indonesia," Pusat Informasi Teknik Pembangunan.

**Table 3.7: NOMINAL WAGES AND INDEX OF REAL WAGES OF UNSKILLED CONSTRUCTION LABOUR
IN SELECTED CITIES, 1972-1977**

City	Nominal Wages (Rupiah/Day)						Index of Real Wages (1972=100)					
	1972	1973	1974	1975	1976	1977	1972	1973	1974	1975	1976	1977
Jakarta	300	325	400	500	500	625	100	83	72	76	63	71
Bandung	184	200	275	367	475	650	100	86	86	97	110	136
Semarang	138	175	200	250	250	367	100	95	84	90	77	103
Jogjakarta	100	N/A	150	212	233	275	100	N/A	88	102	97	101
Surabaya	180	275	350	384	450	425	100	117	115	107	107	86
Denpasar	113	150	200	258	325	325	100	82	85	95	99	89
Palembang	200	300	300	400	400	500	100	98	75	91	81	91
Medan	200	275	425	400	433	550	100	90	113	92	86	97
Pontianak	400	500	725	800	700	750	100	85	100	102	76	76
Ujung Pandang	200	200	200	250	N/A	383	100	78	63	69	N/A	85

Sources and Notes: Nominal wages taken from Pusat Informasi Teknik Pembangunan (Building Information Center), Direktorat Jenderal Cipta Karya; Department Pekerjaan Umum; based on interview of contractors as mentioned in the text.

Yearly figures are averages of as many quarterly figures as were available for the year; four quarterly observations were not available for many years.

Index of real wages is based on separate cost of living index for each individual city as reported in BPS, INDIKATOR EKONOMI (Monthly Statistical Bulletin), January 1978.

Some additional support, also based on extremely limited data, is provided by wage information which the Department of Manpower has collected since 1973 on the lowest wages actually paid (in cash and kind) by various large enterprises in different sectors. The enterprises which are asked to provide this information are not selected by random sampling and the proportion of large enterprises covered by these "wage surveys" is in any case very small. 1/ Minimum wage levels are those for workers in the lowest positions who have been employed for 1 year and who are paid on a daily scale, provided that the daily wage is the lowest. If there are no daily workers, the lowest monthly wages are given. Wages reported by the Manpower Department include allowances and payments in kind for which a worker with a wife and two children is eligible. Real wage indexes based on the reported average minimum wages from 1973 to 1977 for a few individual firms 2/ in various sectors are shown in Table 3.8. Only two firms in manufacturing and two in construction and utilities show some increase in real wage between 1973 and 1977, while enterprises in all other sectors as well as Government show a decline in real wages ranging from 3% in government administration to over 50% in a large hotel. 3/ For the mining, banking and airline firms (all Government enterprises) and in Government the declines in real wages were between 3 and 12%. Again the overall impression one gets is that real wages of unskilled workers in these firms have at best stagnated.

Some Institutional Factors in Urban Labor Markets

For a variety of reasons labor legislation and government regulations appear to have limited impact on the operation of urban labor markets. Most of the current labor laws were enacted between 1950 and 1965. Only a few labor laws have been promulgated after 1965; these include the Basic Employment Regulation, the Law on Work Safety and the Law on the ILO Conventions. Although emphasis is still placed on Pancasila Labor Relations (based on the principles of partnership and cooperation between labor and management), very substantial changes have taken place in the Government's labor policies and in the way labor laws are administered.

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- 1/ For example, in 1977 only about 45 enterprises in the manufacturing sector were covered for the wage enquiry, while the Survey of Manufacturing Industries by the BPS indicate that there are about 2,500 large-scale manufacturing enterprises. Hence the coverage is less than 2%.
- 2/ Because of difficulties in gathering wage information, data are supplied by the Manpower Department for only a few companies (in all 30 including 3 plantations) which provide information in a systematic way. Although many companies have supplied wage data, lack of company continuity or inadequate systems for reporting data to the Department of Manpower, Transmigration and Cooperatives have prevented the inclusion of those data here.
- 3/ Presumably tips constituted a major portion of the hotel workers' earnings, and perhaps increased as prices of hotel food and service increased.

Table 3.8: MONEY AND REAL WAGE INDEXES OF LOWEST PAID WORKERS
IN SELECTED LARGE FIRMS, VARIOUS SECTORS, 1973-1977

	Money Wage Index					Real Wage Index				
	1973	1974	1975	1976	1977	1973	1974	1975	1976	1977
<u>Mining and Manufacturing</u>										
Oil company	100	122	125	160	202	100	87	75	80	91
Textile firm	100	132	155	173	n.a.	100	94	92	86	n.a.
Soap and chemical company	100	135	197	245	276	100	96	118	122	124
Tobacco company	100	210	237	255	257	100	149	141	127	115
Beer & soft drinks firm	100	130	183	221	221	100	92	109	110	99
Electronics firm	100	123	142	161	189	100	87	85	80	85
Fertilizer company	100	100	160	175	209	100	71	96	87	94
Heavy equipment company	100	139	201	225	233	100	99	120	112	105
Machinery company	100	120	160	170	227	100	85	96	85	102
<u>Construction and Utilities</u>										
Large construction firm	100	148	215	253	274	100	105	129	126	123
(PLN) Electricity	100	202	288	288	288	100	144	172	144	129
<u>Banking and Insurance</u>										
Major bank	100	130	163	199 ^{/2}	213	100	93	100	99	96
Large insurance company	100	121	137	145	160	100	86	82	72	72
<u>Transportation</u>										
Major airline	100	141	171	171 ^{/3}	196	100	100	102	85	88
Transport firm	100	n.a.	129	137	137	100	n.a.	77	68	62
<u>Services</u>										
Large hotel	100	103	103	103	103	100	73	61	51	46
Government administration	100	142	174	190	216	100	101	104	94	97

^{/1} The unpublished data used in the Table are actual (not legal) minimum wage levels for workers in the lowest positions who have been employed for one year and who are paid on a daily basis, provided the daily wage is the lowest in the enterprise. If there are no daily paid workers, the lowest monthly wage figures are collected by the Manpower Department. These wages as reported include allowances in kind for which a worker with a wife and two children is eligible.

Unless otherwise noted, the Table uses average minimum wages per month during a year as reported by the Manpower Department by taking simple means of its four quarterly observations (for January, April, July, and October) during each year.

The reported data do not indicate the number or the proportion of workers who get these minimum wages in various enterprises.

Real wages were derived by deflating money wages using Jakarta cost of living index (yearly averages) reported in Economic Indicator, Monthly Statistical Bulletin, January, 1978, Table II.3.

^{/2} Average of April, July and October.

^{/3} Average of July and October.

Source: Department of Manpower, Transmigration and Cooperatives (unpublished data).

The law on dismissals (Act No. 12 of 1964), under which private firms may not discharge their employees without prior consent of an appropriate government-appointed committee, now appears to be administered in a prompt and reasonable fashion. Requests for dismissal of superfluous or indisciplined workers are usually accepted and consent given within a week. In case of mass dismissals, permission needs to be obtained from a central committee in Jakarta, which is required to consider "the development of the labor market and the interest of the employee and the undertaking" in deciding the matter. Such cases are rare, and consent is not quickly given, but is not generally denied either.

In hiring and firing employees, companies can and do take advantage of some provisions of the existing law. No permission is required for dismissal of workers during a probationary period. A firm may have individual labor contracts with employees extending for periods up to one year, and such contracts may be renewed. An employee who has been in the employment of a firm for even five years may still be kept on a fixed term contract and may be dismissed as and when the contract expires.

The law relating to working hours (Act No. 1 of 1951) fixes the maximum working day at 7 hours or 6 hours for night work. An 8 hour day is permitted under application to the government under certain circumstances, and such permission appears, in fact, to be granted as a matter of course.

There is a general legal prohibition of night work by females, "except if the work, according to its nature, place and condition ought to be performed by women." Women may also receive up to three months paid leave prior to child birth. However, the overwhelming majority of Indonesian women who work, even in urban areas, are not covered by the law. Some of the very low wage sectors have predominantly female employees--e.g. batik, pottery, and certain handicrafts. Physical conditions permitting night work is not unusual. In some medium-sized hotels and restaurants probationary females were found to work over 12 hours spread over day and night.

Indonesia has no national minimum wage law. The government's general policy ^{1/} in regard to wages stresses the desirability of consultation between labor and management in determining wages which must be compatible with national economic growth and the condition of the company. It stresses that when many people are seeking work, the important consideration is how to expand job opportunities rather than how to achieve higher wages. It emphasizes that higher wages must not be sought if the result is reduced job opportunity or lay-offs. In setting wages the health of the enterprise must be taken into consideration, especially its capacity to generate profits for further investment and expansion in order to employ more people. Low wages prevailing in rural areas must also be taken into consideration, because if urban wages are set high, rural people will flock to the cities. The general guideline also says that in order to avoid the vicious circle of wage-price spiral, wage policy must not be based on inflation. However, the general policy of the government is to urge management to improve living conditions of employees through such means as education, health care, welfare and accident insurance in addition to wages. While management is not supposed to set wages arbitrarily, strikes by workers are prohibited.

^{1/} Described in Repelitta II; also emphasized by the Minister of Manpower in a consultative meeting with leaders of private and state enterprises and trade unions group in Jakarta in March 1977.

The government has undertaken certain actions to raise wages in particularly low wage areas and sectors to certain minimum levels, based on what is called Minimum Physical Needs (MPN). Surveys have been made to determine the cost of Minimum Physical Needs (including food, clothing, housing, and recreation) of workers in several places and provinces and MPN levels are suggested as a guideline for management in providing a proper living wage to workers. 1/

A survey covering 418 firms of varying types and sizes employing 225,000 workers in all provinces of Java, conducted in 1976 under the Wage Regulation Project of the Manpower Department found that the vast majority of workers received wages below what the survey estimated to be minimum physical needs of a worker (ranging from Rp 409 per day in Central Java to Rp 518 per day in Jakarta). Similar findings were reported for North Sumatra and South Sulawesi. Of the provinces surveyed only in North Sumatra, Jambi, North Sulawesi, South Kalimantan were the majority of workers getting more than MPN wages. The study recommends, however, that the establishment of minimum wages should be done by stages--on a regional, sectoral basis--and that "the formulation of minimum wage policy for small companies, traditional companies, and informal sectors will require a separate study."

Regional Wage Study Councils for each province are being set up which will draw up a priority schedule of sectors and sub-sectors, for which they will recommend minimum wages taking into account prevailing wage levels and minimum physical needs. These recommendations, with or without modifications, will form the basis of minimum wage regulations promulgated by provincial governors or by the Minister of Manpower. Since 1974-75, minimum wage rates have been promulgated in only a few sectors in some provinces. Most of these have been through ministerial decrees covering one or more sectors in 16 provinces, and some through decrees of six provincial governors.

The minimum wages stipulated in ministerial decrees do not by and large appear to be higher than those prevailing in large and medium scale enterprises. Furthermore, the implementation of minimum wage regulations seems to have engendered some confusion. Many firms are uncertain whether they are covered by any such regulations, or whether the regulations have any legal force. Lack of clarity in the decrees, variation in the coverage of sectors, overlapping jurisdictions and ineffective communication have led to uncertainties regarding which enterprises are supposed to be covered by which wage regulation.

1/ Wage Rate Regulation Project, Analysis of the Findings of the Wage Rate Survey and Draft Guidelines for a Policy To Be Followed in Establishing Minimum Wage Rates, Dept. of Manpower, 1976/77.

The limited extent and strength of workers' organizations make their influence in urban labor markets of relatively little significance. One central organization, the All Indonesian Labor Federation (FBSI), is recognized by the government. Formed about 6 years ago when practically no trade unions existed, the FBSI claims to have affiliated local unions in only 7,000 factories out of a total of about 50,000. Its worker membership is extremely small. No trade union is allowed to be formed in Government enterprises and the formation of a separate organization of Government civil servants (COPRI) took away considerable strength from the trade union movement. Strikes are prohibited and cannot be used as a weapon in collective bargaining.

Trade union activity is essentially limited to negotiating collective labor agreements with large private companies and pressing for the extension of minimum wage regulations in various sectors and areas. In both these activities, the FBSI relies less on membership strength than on the sympathy and support of the government and the goodwill of some large firms. The FBSI or its local unions have so far negotiated about 100 collective labor agreements covering about 1,000 companies. While most workers even in large scale enterprises are not covered by collective agreements, a regulation of the Ministry of Manpower (Regulation No. 2 of 1976) does require companies with more than 50 employees to have their employment and wage regulations approved by the Regional Manpower Office and most companies have submitted their regulations for approval.

The dearth of data regarding labor market institutions is especially unfortunate in the area of skill formation and worker training. There is little information on either the availability of particular skills or on the facilities and processes for skill development and training.

Based on the results of a small survey (interviews in 45 firms in food processing, wood manufacture, rubber, leather and textiles), one group of researchers ^{1/} reached the conclusion that, in spite of the low literacy rate, scarcity of skills in general seemed to be no bottleneck for maintenance and expansion of industrial production. Local labor markets seemed able to provide the firms with sufficiently skilled laborers. The main sources of industrial skills seemed to be on-the-job training. Since the trainability of unskilled workers is considered to be high, most firms would undertake their own production specific training for periods of 6 to 9 months. Large scale enterprises, however, reported a scarcity of supervisory and middle-level managerial personnel. Another larger survey in East Java covering 667 large and medium scale firms in various sectors (mostly in the cities of Surabaya and Mojokarto) found that only 6.3% of the firms had on-the-job training programs for their employees and those primarily for skilled production workers, technicians, marketing and administrative personnel. Although some firms reported difficulties in recruitment (not from any lack of applicants but from inexperience or lack of requisite skills of the applicant workers) the inadequacy of skills as perceived by the survey firms was judged to be small.

^{1/} Juergen B. Donges, Bernd Stecher, and Frank Walter, Industrial Development Policies for Indonesia, JCB Mohr (Paul Siebeck) Tubingen, 1974.

Finally, the survey of informal enterprises in Jakarta cited earlier confirmed the informal character of skill acquisition by workers in extremely small enterprises. Most of the informal sector firms hired workers without previous experience and trained them on the job. But it is unclear how high a level of skill was being achieved by this process for most of the workers concerned.

The future development and productivity of Indonesian manufacturing and other non-agricultural sectors will in large measure be dependent on the extent to which the expanding numbers of workers in these sectors acquire appropriate levels of skill. Certainly the processes of skill acquisition and education of the labor force merit close attention in the formulation of development policy. And the characteristics of different size firms for contributing to the skill upgrading of the labor force may be a relevant consideration in industrialization policy. Large scale firms may have the capacity for undertaking formal training programs but lack the incentive to do so. Medium and smaller scale enterprises may also be able to provide apprenticeship and on-the-job training with proper incentives. However, the training capacity of the extremely small informal enterprises is likely to be limited in character and quantity particularly where more modern techniques are involved.

Conclusion

This brief review of urban labor markets has exposed more gaps in information than reasonably firm factual propositions. But a few tentative and mainly impressionistic conclusions have emerged.

In spite of considerable dispersion of observed wages, average levels of urban wages of unskilled or less skilled workers are low among various sectors and in any particular urban area, average wage levels of unskilled or less skilled workers do not vary widely. In particular, there do not appear to be wide differentials between wage levels in larger scale enterprises and the extremely small firms of the informal sector. No sharp and systematic institutional differentiation between wage levels of these sectors has been created by wage laws, trade union activity or labor practices of Government and Government-controlled enterprises. Urban labor markets in Indonesia seem to exhibit many of the characteristics of reasonably competitive markets, with small differentials attributable to institutional factors.

Average wage rates of unskilled and less skilled workers are only slightly higher in urban areas than the corresponding figure in rural areas of the same region, even after making allowances for cost-of-living differences. Even the differential between Jakarta and rural West Java is not large when cost of living differences are taken into consideration. And on balance, it is doubtful whether urban unskilled wages in manufacturing, construction, transport or services are markedly out of line with average earnings of agricultural laborers in surrounding areas.

Inter-regional differentials of wages for unskilled and less skilled workers--both between urban and urban, and between rural and rural--are larger than intra-regional urban-rural wage differential. This is likely to be true even after making allowances for cost-of-living differences, as mentioned earlier. The differential is larger between some areas of Kalimantan and Sumatra on one hand and most of Java on the other, than between different provinces of Java.

Finally, there seems to be no evidence of any pronounced upward movement in real wages in recent years and much of the limited data available suggest stagnating real wage trends.

It can hardly be overemphasized that the empirical foundation for any one of these conclusions is defective in the extreme. However, together they may gain in credibility since in many ways they add up to a reasonably coherent view of urban wage patterns and recent wage changes that is generally consistent with our state of knowledge about the structure and operation of urban labor markets.

In the final section, some of the implications for future developments will be examined along with consideration of some central employment and labor market policy issues.

IV. CONSUMPTION LEVELS, POVERTY AND INCOME DISTRIBUTION

The question of what has been happening to the Indonesian income distribution over the past few years of quite rapid overall economic growth continues to be a matter of debate. On the one hand, there are those who assert that the situation has not been altogether discouraging and that incomes have been increasing in both urban and rural areas, and in particular in rural Java where most of the concern is directed. 1/ Moreover, income inequality has declined in the rural sector. On the other hand, others claim that the position of certain groups of the population observed by them in rural Java has deteriorated, thereby suggesting a worsening of the income distribution. 2/

Unfortunately it is not possible to determine what has been happening to the distribution of income in Indonesia over time; comparable data on incomes at two different points in time are not available. However, extensive data do exist on the level and distribution of consumption expenditures of households over the period 1970 to 1976 which can be used to assess the changes in average living standards of different groups of the population. It is important to bear in mind that such information cannot provide a complete picture of changes in the level and distribution of income.

Changes in the Levels of Real Consumption

The first task is to determine what has happened to the level of living of the Indonesian people during recent years--whether there has been any improvement in the living standards of the population in general, whether such improvement has been uniform across different population groups, and to what extent the poorest groups have shared in any improvement which may have taken place. The basic data used are from the Survey Sosial Ekonomi Nasional (SUSENAS) for January-April, 1970 and January-April 1976 covering the whole of Indonesia, with the exception of Maluku and Irian Barat in 1970 and Irian Barat in 1976. 3/ Since the period of the year covered in the two

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- 1/ See L.N. Perera. Economic Growth and the Distribution of Income in Indonesia (1970-1976), UN OTC Project, INS/72/002, Jakarta, July 1977; and H.W. Arndt. "Development and Equality: the Indonesian Case," World Development, Vol. 3, Nos. 2 and 3, February-March 1975, pp. 77-90.
 - 2/ For example, research at the Agricultural Institute at Bogor based on studies from the Agro-Economic Survey and Ingrid Palmer. "Rural Poverty in Indonesia, With Special Reference to Java," in Poverty and Landlessness in Rural Asia, Geneva: International Labour Organization, 1977.
 - 3/ Survey Sosial Ekonomi Nasional, Tahap Ke-Empat (October 1969-April 1970), Pengeluaran Untuk Konsumsi Penduduk, Biro Pusat Statistik, Jakarta and Survey Sosial Ekonomi Nasional, Tahap Ke-Lima (Januari-April 1976), Pengeluaran Untuk Konsumsi Penduduk, Biro Pusat Statistik, Jakarta.

surveys is identical, there are no problems of seasonality in any comparison of the average levels of consumption expenditure. In addition, the period is one which fortunately does not overlap with either the fast or the feast period in the Islamic calendar. ^{1/} The SUSENAS used households as the units of observation. Information was collected on the quantities and prices of goods and services purchased by the household, as well as home-produced or received free. Thus a value could be placed on each item of goods and services consumed. Altogether data were collected for some 160 items of consumption expenditure. The sum of these represents the total value of consumption, both cash and noncash, of the household.

Household consumption expenditure per household member is not an ideal measure of the level of living for all the members of the household. Household members of different ages and sexes differ in their consumption requirements, so that simple per capita measures of household consumption tend to bias downward estimates of the levels of living in larger households; these on average have a larger proportion of children whose consumption requirements are lower. Moreover, no allowance is made for possible economies of scale in consumption. Nonetheless, consumption expenditure per household member at least takes into account the size of the household which is more crucial to the qualitative results than household composition.

Since the price level of consumer goods rose 2-1/2 to 3 times between 1970 and 1976, it is necessary for any comparison of consumption expenditures to take the price increase into account. Three different indexes have been constructed, all based on published price data. They are the 9 Essential Commodities Index which is available for provincial capitals as well as rural markets of Java and Outside Java; the Cost of Living Index which includes 62 commodities and is available for the provincial capitals; and the Food Index which, for urban areas, is simply the food component of the Cost of Living Index and, for rural areas, is the Index of 12 Food Articles in the Rural Markets of Java-Madura. The indexes are presented in Table 4.1.

The 9 Essential Commodities Index indicates that the general price level in Java has risen substantially faster than that in Outside Java. In neither region is there much difference in the urban and rural increase in prices, this being somewhat faster in rural areas for Java and in urban areas for Outside Java. Food prices have gone up considerably faster than the overall indexes for all regions for which information is available. Again the increase is greater in urban Java than in urban areas of Outside Java.

Since the proportion of total consumption expenditures spent on food is greater for poor households than for the rich, and the food component of the price index went up more rapidly than that for non-food items, the food price index gives an upper bound on consumption price increases;

^{1/} For a discussion of this problem in some of the SUSENAS, see A.J. Nyberg. "A Bias in Susenas Data," Bulletin of Indonesian Economic Studies, Vol. 12, No. 1, March 1976, pp. 110-111.

Table 4.1: PRICE INCREASES USING DIFFERENT INDEXES,
INDONESIA, 1970-1976
(1976 index with 1970=100)

<u>Price Index</u>	<u>Java</u>		<u>Outside Java</u>	
	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
9 Essential Commodities	273	284	250	244
Cost of Living (62 commodities)	273		249	
Food	305	304	265	

Source and Method

9 Essential Commodities

Urban: Table XIII.10, Statistical Pocketbook, 1974-75, Table II.2, Price Indexes of 9 Essential Commodities in Selected Cities, Indikator Ekonomi, April 1976. The city indexes for 1976 are the simple averages of the monthly indexes for January to April 1976 for each city. The urban index of price increases for Java and Outside Java for each year is the average of the increases in the city indexes weighted by the 1971 urban population of the province for which the city is the provincial capital. Maluku and Irian Barat were excluded from the Outside Java index because these provinces are not included in the consumption expenditure figures; Bengkulu, East Nusatenggara and East Kalimantan are excluded because city price indexes were not available for 1970.

Rural: This uses data from Table II.6, Price Indexes of 9 Essential Commodities in the Rural Markets of Java and Madura, Indikator Ekonomi, July 1976 and Table II.7, Price Indexes of 9 Essential Commodities in the Rural Market of Outer-Java, Indikator Ekonomi, October 1977. The 1976 index is calculated as the simple average of the monthly indexes for January to April, 1976. The price increase between 1970 and 1971 is assumed to be the same as that of food articles and is taken from Table II.5, Price Indexes of 12 Food Articles in the Rural Markets of Java and Madura, Indikator Ekonomi, July 1976.

Cost of Living

Urban: From Table II.3, Cost of Living Index in Jakarta, and Table II.4, Cost of Living Index in Selected Cities, Indikator Ekonomi, July 1976. The same procedure is used to get increases for the urban indexes for Java and Outside Java as those for the urban indexes for 9 essential commodities.

Food

Urban: This uses the food index component of the Cost of Living Index and follows exactly the same procedure as for the general Cost of Living Index.

Rural: Table II.5, Price Indexes of 12 Food Articles in the Rural Markets of Java and Madura, Indikator Ekonomi, July 1976. The 1976 index is the simple average of the monthly indexes for January to April 1976.

it overstates the overall increase in the price level, the degree of overstatement being greater for richer households whose weight for food in the consumption basket is considerably less than one. In the discussion that follows, all three sets of price indexes will be used in order to be certain that the findings reported are not simply the outcome of the choice of price index.

Table 4.2 gives average monthly consumption expenditures per capita for urban and rural areas of Java and Outside Java in 1970 and 1976 in current prices. The real increases in per capita consumption using different price deflators are given for the six-year period, with the annual increases in parentheses.

Average consumption expenditure per capita in real terms has gone up in both urban and rural areas of Java and Outside Java. The result holds regardless of which of the three price deflators is used. The growth in urban Java is impressive, of the order of 7% per annum over a six-year period, and in any case at least 5% per annum if we assume that the general price level rose as fast as suggested by the food price index. In urban areas of Outside Java, the growth rate of consumption expenditure was lower but still nearly 5% per annum. Per capita consumption growth in rural areas also certainly took place, but on a much less impressive scale than in urban areas. The annual growth rate for the period 1970 to 1976 was nearly 3% in rural Java and over 2% in rural areas of Outside Java; again Java did somewhat better than Outside Java. The differential in per capita consumption between urban and rural areas is widening. This follows from the fact that the urban growth rate is higher than the rural rate, for all three price deflators used. 1/

In 1970, consumption expenditure per capita was nominally 21% higher in the urban areas of Outside Java than in urban Java. But the price level in Outside Java was about 12% higher than in Java for urban areas. 2/ Thus in

1/ It is possible that the SUSENAS data exaggerate this widening disparity. The sampling frame for the 1976 SUSENAS was essentially the same as that used for the 1971 Census. This could well mean that people living on the edges of urban boundaries are underrepresented. To the extent that there are disproportionately more people with low consumption levels in these areas, the SUSENAS results would bias average urban consumption upwards and understate the level of inequality in consumption in urban areas.

2/ Using the 9 Essential Commodities Index for provincial capitals, with Jakarta, 4 October 1966 = 100, weighted by the provincial urban population in 1971, price indexes were constructed for urban areas of Java and Outside Java, for both 1970 and 1976. The results are as follows:

9 Essential Commodities Index for Urban Areas, 1970 and 1976

(Jakarta, 4 October 1966 = 100)

	<u>1970</u>	<u>January-April 1976</u>
Java	581	1,586
Outside Java	652	1,630

Table 4.2: AVERAGE MONTHLY CONSUMPTION EXPENDITURE PER CAPITA, INDONESIA, 1970 AND 1976
(in Rupiah, current prices)

	Java		Outside Java / <u>a</u>	
	Urban	Rural	Urban	Rural
January-April 1970	1714	1029	2070	1712
January-April 1976	7025	3468	6797	4766

Real Increase in Average Monthly Consumption Expenditure per Capita, Indonesia, 1970-1976
(%)

	Urban		Rural		Urban		Rural	
<u>Price Deflator</u>								
9 Essential Commodities	50.2	(7.0) ^{/b}	18.7	(2.9)	31.5	(4.7)	14.1	(2.2)
Cost of Living	50.1	(7.0)			32.0	(4.7)		
Food	34.4	(5.1)	10.7	(1.7)	24.0	(3.6)		

/a Excluding Maluku and Irian Barat.

/b Figures in parentheses are annual figures.

Source: Consumption expenditure per capita figures are from Survey Sosial Ekonomi Nasional, Tahap Ke-Empat (October 1969-April 1970), Pengeluaran Untuk Konsumsi Penduduk, Biro Pusat Statistik, Jakarta, Table 5.2, and Survey Sosial Ekonomi Nasional, Tahap Ke-Lima (Januari-April 1976), Pengeluaran Untuk Konsumsi Penduduk, unpublished tabulations, Biro Pusat Statistik, Jakarta. Price deflators are taken from Table 4.1.

real terms, the level of consumption expenditure per capita was only some 8% higher in Outside Java. In Table 4.3 the consumption figures for Outside Java are adjusted for the regional difference in the price level. Consumption figures for 1976 are then calculated in 1970 prices, using the rates of growth corresponding to the 9 Essential Commodities Index in Table 4.1. The figures thus obtained take into account price differences both between Java and Outside Java and over time. With these adjustments, rural consumption per capita in 1970 is estimated at 60% and 83% of the urban level in Java and Outside Java respectively. The corresponding figures for 1976 were 47% and 72%, reflecting the significantly slower rate of growth of consumption in rural areas. Because of the slower growth in urban areas of Outside Java compared with Java, the position of urban consumers in Outside Java deteriorated from being 8% above urban Java to 6% below it, after allowing for differences in the cost of living between the two regions.

The Magnitude, Incidence and Distribution of Poverty

The fact that consumption expenditure per capita has risen in real terms need not imply that those with the lowest consumption levels have made any gains; the increases may have accrued to people who were already well-off. To determine whether the proportion of poor people, defined in terms of those below some level of consumption expenditure per capita in constant rupiah, has diminished, different cut-off levels of consumption expenditure per capita in 1976 prices were selected and the equivalent cut-offs in 1970 current prices, using the different price deflators, were calculated. Using the distributions of the population for urban and rural areas of Java and Outside Java by per capita consumption expenditure class in 1970 and 1976, and assuming that within each class the population is uniformly distributed, the proportions of the population whose consumption level is below a given cut-off expressed in 1976 prices were estimated using different deflators. The results are presented in Table 4.4.

In all cases the proportion of poor people, those with consumption per capita below a certain cut-off level, has gone down. The qualitative result is independent of the choice of the cut-off level of per capita consumption in the range studied, and is also independent of the choice of price deflators used, although the quantitative results are naturally sensitive to both the cut-off level and the price deflator. Urban and rural Java have considerably larger proportions of poor people than their counterparts in Outside Java. Moreover, within Java or Outside Java, larger proportions of the rural population are poor when compared with the urban population, even granting that price levels may be higher in urban areas.

For Indonesia as a whole the increase in real consumption of the poorest groups between 1970 and 1976 appears to have reduced the percentage of the population at per capita consumption levels below Rp 3,000, in 1976 prices, from over 50% to about 40%. Moreover, the rise in the real consumption levels of the poorest groups appears to have been sufficiently great that, despite the growth of population, the absolute numbers of persons at these low levels of consumption have decreased as well.

These findings are qualitatively different in some important respects from those previously reported by Sajogyo who also used the SUSENAS

Table 4.3; CONSUMPTION EXPENDITURE PER CAPITA IN JAVA, 1970 PRICES

(Java, 1970 prices, Rp)	Java		Outside Java	
	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
January-April 1970	1,714	1,029	1,846	1,527
January-April 1976	2,576	1,221	2,428	1,742
<u>Urban Java, 1970 = 100</u>				
January-April 1970	100.0	60.0	107.7	89.0
January-April 1976	150.2	71.2	141.6	101.6

Source: Table 4.2 adjusted for price differences across regions and over time, using price indexes for different provinces and Table 4.2.

Table 4.4: PROPORTION OF THE POPULATION BELOW VARIOUS CUT-OFF LEVELS OF CONSUMPTION EXPENDITURE PER CAPITA

Cut-off Level of Consumption Expenditure per Capita (in 1976 prices)	Java		Outside Java	
	Urban	Rural	Urban	Rural
<u>Rp 1,500</u>				
1970: 9 Essential Commodities	6.06	17.52	3.49	9.90
Cost of Living	6.06	-	3.53	-
Food	3.59	14.33	2.79	-
1976	2.76	11.09	1.82	5.77
<u>Rp 2,000</u>				
1970: 9 Essential Commodities	14.59	34.94	8.23	18.59
Cost of Living	14.59	-	8.33	-
Food	11.00	30.29	6.61	-
1976	5.01	21.17	3.53	10.15
<u>Rp 2,500</u>				
1970: 9 Essential Commodities	24.89	50.76	15.32	29.19
Cost of Living	24.83	-	15.45	-
Food	19.36	45.60	13.26	-
1976	11.24	37.11	7.60	19.27
<u>Rp 3,000</u>				
1970: 9 Essential Commodities	35.25	64.20	24.20	40.74
Cost of Living	35.19	-	24.38	-
Food	28.70	59.80	21.14	-
1976	17.47	53.05	11.78	28.39

Source: Calculated from Table 4.3, and Appendix Tables A-15 and A-16.

data. ^{1/} Sajogyo defined poverty thresholds in terms of annual per capita consumption levels in rice equivalents below which people were classified as poor, very poor and destitute. The thresholds stated in terms of rice equivalents were 320, 240 and 180 kilograms in rural areas and 480, 360 and 270 kilograms in urban areas for both Java and Outside Java. The price of rice was taken to be Rp 37.5 in 1970 and Rp 120 in 1976 for Java, and Rp 50 in 1970 and Rp 125 in 1976 for Outside Java, the same prices being used in urban and rural areas in both cases. The cut-off levels in rice equivalents, in conjunction with the prices of rice, implied cut-off levels in terms of consumption expenditures in money terms. Data from the SUSENAS for 1970 and 1976 were then used to find the proportions of the population who were below the various cut-off levels and would therefore be classified as poor, very poor and destitute.

Given that Sajogyo's and our cut-off levels, as well as the price indexes used to compare the two periods, were defined differently, it is to be expected that the results would also be different in quantitative terms. But to the extent that there was in fact great similarity in method and that identical data bases were used, the qualitative conclusions should not be very divergent. Sajogyo found that although the proportions of the population below different poverty thresholds had gone down between 1970 and 1976 in nearly all cases, the proportions classified as poor and destitute in rural Java had in fact increased. Moreover, for both Java and Outside Java, the actual numbers of people below all three thresholds went down in urban areas but went up in rural areas. The results are reproduced in Table 4.5.

There are three reasons why Sajogyo's results are different from ours. First, it turns out that Sajogyo had estimated the proportion of the population in 1976 below various poverty thresholds in terms of annual per capita expenditures in rice equivalents by using the distribution of households by total household expenditure classes, not the distribution of the population by per capita expenditure classes. The latter distribution was not available in published form for 1976. For 1970, however, the distribution of the population by per capita expenditure classes was used.

The implicit assumption in Sajogyo's calculations for 1976 is that one can go from the total distribution to the per capita distribution of consumption expenditures by simply dividing total household expenditure by the average household size for the entire population. Thus, for example, the proportion of the population with per capita consumption expenditures

^{1/} Sajogyo. "Garis Kemiskinan dan Kebutuhan Minimum Pangan" (The Poverty Line and Minimum Food Needs), Kompas, 18.xi.77, Jakarta, cited in White. op.cit. Revised version of paper, Bogor, May 1978.

**Table 4.5: LEVEL AND TRENDS OF POVERTY IN INDONESIA,
1970-1976, BASED ON VARIOUS POVERTY THRESHOLDS:
SAJOGYO'S ESTIMATES AND OUR CORRECTIONS**

Poverty Thresholds (annual per capita expenditures, in rice equivalent)	Sajogyo's Estimates January - April 1970		Sajogyo's Estimates January - April 1976		Estimates Using Per Capita Distribution and Price of Rice/ ¹ January - April 1976		Estimates Using Per Capita Distribution and 9 Essen- tial Commodities Index/ ¹ January-April 1976	
	Total	Number (millions)	Total	Number (millions)	% of Total	Number (millions)	% of Total	Number (millions)
JAVA - Urban								
Poor (480 kg.)	55.90	7.13	42.50	6.89	45.99	6.81	35.85	5.31
Very Poor (360 kg.)	43.70	5.37	28.49	4.62	27.68	4.10	14.68	2.18
Destitute (270 kg.)	26.05	3.32	17.75	2.88	13.73	2.03	8.79	1.30
JAVA - Rural								
Poor (320 kg.)	61.00	37.97	58.60	40.48	57.11	38.48	47.95	32.31
Very Poor (240 kg.)	39.49	24.58	39.78	27.48	33.92	22.86	25.31	17.06
Destitute (180 kg.)	20.93	13.03	24.95	17.24	17.14	11.55	13.06	8.80
OUTSIDE JAVA - Urban								
Poor (480 kg.)	61.44	4.43	43.51	4.12	42.41	3.66	42.71	3.68
Very Poor (360 kg.)	38.96	2.81	27.13	2.57	22.83	1.97	23.04	1.99
Destitute (270 kg.)	20.78	1.50	14.55	1.38	10.18	.88	10.27	.89
OUTSIDE JAVA - Rural								
Poor (320 kg.)	44.80	15.77	41.65	16.83	35.63	13.98	34.21	13.42
Very Poor (240 kg.)	27.78	9.78	25.83	10.44	19.54	7.67	18.61	7.30
Destitute (180 kg.)	15.01	5.28	14.44	5.83	9.32	3.66	8.97	3.52

Source: Sajogyo, Op. Cit.

Corrected estimates use SUSENAS, 1976 data and 9 Essential Commodities Index from Table 4.1.

¹ Population totals for urban and rural Indonesia are taken from the 1976 Intercensal Survey. The division of each into Java and Outside Java is based on proportions from the SUSENAS, 1976.

below Rp 3,000 is assumed to be identical to the proportion of households with total consumption expenditures below Rp 15,000, if the average household size is five persons. Unfortunately, this procedure is incorrect.

First of all, within each total household consumption class, it is necessary to take into account the distribution of households by size. Whether or not the members of a household will be below a given poverty threshold depends not only on the level of total household consumption expenditure, but also on how many people there are in the household. Of two households in the same total household consumption class, one with two members will be in a higher per capita consumption class than one with eight members; the former may be above a given poverty threshold while the latter is below it. There is no simple way to go from the total household consumption distribution to the per capita consumption distribution. Account must be taken of the distribution of households by household size within each total household consumption class. The observations in each of the per capita consumption classes can in theory come from any of the total consumption classes. Thus, allowing for different average household sizes by total consumption class would still not be sufficient, since account must be taken of the variance in household sizes within each class as well.

Moreover, when the level of per capita consumption of a household falls below a given poverty threshold, that household must be given the weight corresponding to the number of its members in the distribution of the population by per capita consumption.

Thus we see that it is important to recognize that the total and per capita distributions are quite distinct distributions, in the sense that one cannot be used to approximate the other and also that comparisons between them are meaningless. Moreover, for purposes of estimating the size of the poverty population, the per capita distribution must be used; the total distribution cannot be used as a substitute or proxy. Therefore, Sajogyo's calculations of the proportions and absolute numbers of the population below various poverty thresholds in 1976 are incorrect and the results can in no way be compared with his 1970 figures.

Second, apart from the error made by Sajogyo in his calculations for 1976, the use of the price of rice would in any case overstate the proportions and numbers of people below various poverty thresholds in 1976 relative to 1970. Rice prices increased faster than the price of food which in turn increased faster than the price of nonfood items. Since people's consumption baskets consist of other food items besides rice, as well as nonfood items, using the price of rice alone exaggerates the price increase of the total consumption basket.

Third, Sajogyo further overestimated the absolute numbers of people below various poverty thresholds in 1976 by using a total population figure for Indonesia which was too high. His figure was 135.2 million, whereas the figure from the 1976 Interceasal Survey was only 130.2 million.

The distribution of the population by per capita consumption expenditure for 1976 is now available and can be used to make the appropriate calculations. In Table 4.5 we also give the proportions and absolute numbers of people classified as poor, very poor and destitute, where the 1976 figures are first of all corrected by using the per capita, instead of total, consumption expenditure distribution and, secondly, by using the 9 Essential Commodities Index instead of the price of rice to define the 1976 poverty thresholds which are equivalent to the 1970 ones. The 1976 Intercensal Survey total population estimate was used in the corrections throughout, since Sajogyo's figures were clearly too high.

Using the per capita instead of the total distribution of consumption expenditures has the effect of lowering the proportions of people below various poverty thresholds in 1976 in all cases, except for the proportion classified as poor in urban Java. In any case, the proportion below the poverty thresholds clearly falls between 1970 and 1976 for all thresholds in every region. Correspondingly, the absolute numbers of people below these poverty thresholds also go down, with the exception of the poor group in rural Java, where there is an insignificant increase from 37.97 million to 38.48 million between the two periods. Thus the correction changes Sajogyo's results substantially.

Moreover, when corrections are also made by using the 9 Essential Commodities Index instead of the price of rice to define the 1976 threshold levels, the proportions and numbers of people below various poverty thresholds in 1976 are further reduced in Java, while the estimates for Outside Java are more or less unchanged, since there is very little difference between the two sets of price increases in Outside Java.

The correct procedure therefore leads to very different results. The proportions of the population classified as poor, very poor and destitute, according to Sajogyo's own definitions, decline in all cases for all regions between 1970 and 1976. Moreover, in spite of population growth, the absolute numbers of the poor also go down in every instance. Sajogyo has overstated the proportions and numbers of the poor groups in 1976 by using the total, instead of the per capita, consumption expenditure distribution for 1976, by using the price of rice instead of a general price index, and by using inflated total population figures for 1976. His corrected results have been shown to be in agreement with the findings of this report.

To consider the problem another way, we calculate the average monthly consumption expenditure per capita for subgroups of the population in current prices for 1970 and 1976. The subgroups represent the poorest 10%, 20%, 30% and 40% of the population in each of the areas of Java and Outside Java. Using the three price deflators given earlier, the annual growth rates in per capita monthly consumption expenditure for these groups in real terms are then calculated. The results are given in Table 4.6.

**Table 4.6: AVERAGE MONTHLY CONSUMPTION EXPENDITURE PER CAPITA
FOR THE POOREST 10%, 20%, 30% AND 40%
OF THE POPULATION, INDONESIA, 1970 AND 1976
(in Rupiah, Current Prices)**

Population Group	Java		Outside Java	
	Urban	Rural	Urban	Rural
1970: Poorest 10%	508	327	670	466
Poorest 20%	639	421	833	609
Poorest 30%	739	482	958	722
Poorest 40%	828	541	1,074	824
1976: Poorest 10%	1,880	1,174	2,092	1,394
Poorest 20%	2,382	1,434	2,681	1,858
Poorest 30%	2,735	1,761	3,096	2,192
Poorest 40%	3,058	1,929	3,453	2,471

**Annual Real Increase in Average Monthly Consumption
Expenditure per Capita, Indonesia, 1970-1976
(% per Annum)**

	Urban	Rural	Urban	Rural
<u>Price Deflator</u>				
9 Essential Commodities				
Poorest 10%	5.2	4.0	3.8	3.4
Poorest 20%	5.3	3.1	4.3	3.8
Poorest 30%	5.2	4.3	4.4	3.7
Poorest 40%	5.2	3.9	4.3	3.5
Cost of Living				
Poorest 10%	5.2		3.9	
Poorest 20%	5.3		4.4	
Poorest 30%	5.2		4.5	
Poorest 40%	5.2		4.4	
Food				
Poorest 10%	3.3	2.8	2.8	
Poorest 20%	3.4	1.9	3.3	
Poorest 30%	3.3	3.1	3.4	
Poorest 40%	3.2	2.7	3.3	

Source: Calculated from Appendix Tables A-16 and A-17, using price indexes from Table 4.1. Average consumption expenditure figures are taken from the SUSENAS 1970 and 1976.

Between 1970 and 1976, average consumption per capita in real terms increased for the poorest population groups regardless of whether the poorest 10%, 20%, 30% or 40% are considered and irrespective of the price deflator used. The rates of increase were very similar within the poorest 40% of a given area and region. Thus it makes little difference in this respect whether we consider the poorest 10% or 40%, the exception being the urban areas of Outside Java where the growth rate was lower for the very poorest decile. Considering Java and Outside Java separately, the annual increase in per capita consumption was lower in rural areas than in urban areas.

When the annual rates of increase in per capita consumption of the poorest groups given in Table 4.6 are compared with those for the population as a whole in Table 4.2, we find that the latter are higher for urban areas and lower for rural areas of both Java and Outside Java. The results imply a widening of the disparity in per capita consumption between the poorest 40% and the rest in urban areas but some narrowing of the disparity in rural areas.

Since the data from the Survey Sosial Ekonomi Nasional, 1976 are available for each of the provinces of Indonesia, it is possible to examine the incidence and distribution across provinces and islands of urban and rural poverty, where poverty is arbitrarily defined as having monthly per capita consumption below Rp 3,000. ^{1/} To allow for differences in the price level across provinces, the cut-off levels of per capita consumption are adjusted to reflect these, using the 9 Essential Commodities Index for provincial capitals for both urban and rural areas. This in effect assumes that the relationship between prices for different provinces is similar for urban and rural areas, although there could still be a difference in the price level between urban and rural areas themselves. In other words, the same urban-rural price relationship is assumed for all provinces.

From the resulting estimates of the incidence of poverty which are presented in Table 4.7, it can be seen that great variations exist across provinces in this respect. The incidence of poverty is particularly high in both the urban and rural areas of Central Java, East Java, Jogjakarta and Maluku. The incidence of poverty in West Java is high in urban areas but below the national average in rural areas. Sumatra and Kalimantan have the lowest concentration of the poor, while Java and Maluku clearly have the highest.

^{1/} When lower consumption levels are used to define the poverty level, the size of the poverty population is smaller but regional differences are on the whole similar. However, there are provinces which have larger proportions of the very poor than the national average but not of the slightly less poor and those which only have larger proportions of poor people than the national average when the cut-off is defined high enough.

Table 4.7: INCIDENCE AND DISTRIBUTION OF POVERTY, /1
URBAN AND RURAL, JAVA AND OUTSIDE JAVA, 1976
(%)

	Urban		Rural	
	Incidence	Distribution	Incidence	Distribution
I. Sumatra	13.5	14.1	28.5	10.1
II. Java	20.7	70.2	58.7	73.8
Jakarta	(7.5)	(9.1)	-	-
West Java	(24.8)	(16.1)	(40.7)	(15.7)
Central Java	(33.4)	(19.1)	(67.8)	(26.7)
Jogjakarta	(21.5)	(2.1)	(60.5)	(2.5)
East Java	(28.0)	(23.9)	(66.3)	(29.0)
III. Bali and Nusa Tenggara	27.4	3.7	49.5	6.1
IV. Kalimantan	13.9	4.8	17.3	1.4
V. Sulawesi	15.7	6.1	45.0	6.4
VI. Maluku	31.2	1.2	61.9	2.2
Indonesia	18.7	100.0	50.2	100.0

/1 Proportion of regional population with average monthly per capita consumption expenditures less than Rp 3,000 per month (incidence) and regional poverty population as a proportion of total poverty population (distribution). To correct for regional differences in price levels, rupiah consumption expenditures are adjusted to Jakarta prices. Since the 9 Essential Commodities index used was lower in 1976 for Jakarta than for Java or Outside Java, the incidences of poverty reported here are higher than those in Table 4.4.

Source: Appendix Tables A-18, A-19, A-20 and A-21.

A province may have a high proportion of its people classified as poor, but it may not contain a large proportion of all poor people if its total population is small. From the distribution of poverty among provinces for urban and rural areas it is apparent that the vast majority of the poor, 70-75%, is to be found in urban and rural Java. Within Java the major shares come from East and Central Java.

In summary, between 1970 and 1976 consumption expenditure per capita went up in real terms in both urban and rural areas of Java and Outside Java. The growth rates were somewhat higher in urban and rural Java than in the corresponding areas of Outside Java, but the urban-rural differential widened in both Java and Outside Java as a result of a considerably faster growth in the urban areas. The growth in average per capita consumption expenditure does appear to have been accompanied by a reduction both in the proportion and absolute numbers of the population below certain low levels of per capita consumption.

It is a measure of the immensity of the poverty problem that faces Indonesia that despite the improvements indicated by these estimates of per capita consumption, more than 50 million persons are unable to maintain a level of consumption above the extremely low standard of Rp 3,000 and that 70% of these are concentrated in the rural areas of Java. Moreover, it deserves emphasis that an analysis based on the average experience in different size classes of per capita consumption cannot capture the actual experience of specific socio-economic groups who may have suffered significant and widespread deterioration in their living standards, despite the improvement in average levels.

Finally, differences in the average levels and distribution of consumption expenditure at two points in time can give only a partial view of changes in the level and distribution of the social and economic welfare of the poor. Not only are consumption expenditures a very imperfect indicator of total incomes but an analysis of them can provide little insight into the costs and sacrifices involved in the adaptive efforts poorer households may have had to undertake in order to maintain or increase slightly their minimal standards of consumption. As discussed in the preceding section on employment, for certain groups these costs may have been substantial, involving significant shifts from agricultural to non-agricultural sources of income as well as an increase in the participation of family members in income-earning activities. Before some rough judgments on these issues are attempted, however, it will be useful to explore briefly the distribution of households at different consumption levels by their sector of employment and sources of income.

Sources of Income for Households at Different Levels of Consumption

The only comprehensive source of information available on the distribution of households at different per capita consumption expenditure levels

and their sources of income is the 1976 Intercensal Population Survey. 1/ The period covered by the 1976 Intercensal Population Survey is nearly the same as that of the Survey Sosial Ekonomi Nasional, February to March 1976 instead of January to April 1976. However, whereas the Survey Sosial Ekonomi Nasional had as its major objective the collection of data on consumption expenditures, the expenditure data in the 1976 Intercensal Population Survey were not of critical importance. The household consumption expenditure information in the Survey Sosial Ekonomi Nasional was obtained as a result of many questions asked of each of approximately 160 items of consumption; in the 1976 Intercensal Population Survey it resulted from only one question altogether and the questionnaire leaves it unclear whether own consumption was to be included. 2/ Consequently, the quality of the consumption information is far inferior to that of the Survey Sosial Ekonomi Nasional and, given the manner in which the information was obtained, an underestimate can be expected.

Estimates of per capita monthly consumption expenditure from the two surveys confirm this. The 1976 Intercensal Population Survey implies figures of Rp 4,388 and Rp 2,891 for urban and rural areas respectively. These represent 63% and 73% of the estimates from the Survey Sosial Ekonomi Nasional of Rp 6,942 and Rp 3,950. The underestimation is likely to vary by consumption level, so that the 1976 Intercensal Population Survey per capita consumption expenditure classes are not directly comparable with those in the Survey Sosial Ekonomi Nasional; they do, however, represent a reasonable ordering of the population by consumption level.

Table 4.8 gives a distribution of households by their primary sources of income, agriculture and non-agriculture, for urban and rural areas. Agricultural households on average clearly have lower consumption levels. The per capita consumption level of agricultural households is 81% and 93% of that of non-agricultural households, in urban and rural areas respectively. 3/

Table 4.9 gives a distribution of households for both urban and rural areas in which households in each consumption per capita class are distributed according to whether household income originates from agriculture alone, non-agriculture alone, or a mixture of the two. In urban areas, it is not surprising to find almost 90% of the households engaged solely in non-agricultural activities and very few households mix their sectors. In rural

1/ For a general description of the 1976 Intercensal Population Survey concerning its objectives, sampling design and methodology see 1976 Intercensal Population Survey, Technical Report Series, Monograph No. 1, Organization and Methods, Biro Pusat Statistik, Jakarta, 1976.

2/ The question asked was simply "What is the average monthly expenditure of this household?". The answer was to be in thousands of rupiah.

3/ The mean of the open-ended class is estimated by making use of the Pareto distribution.

Table 4.8: DISTRIBUTION OF HOUSEHOLDS BY HOUSEHOLD SOURCE OF INCOME AND
AVERAGE MONTHLY EXPENDITURE PER CAPITA, INDONESIA, 1976
(%)

Average Monthly Expenditure per Capita (Rp.)	Urban		Rural	
	Agriculture ^{/a}	Nonagriculture ^{/b}	Agriculture ^{/a}	Nonagriculture ^{/b}
0 - 999	.99	.60	2.11	1.23
1,000 - 1,999	15.45	10.36	24.36	20.80
2,000 - 2,999	28.97	21.44	34.26	32.31
3,000 - 3,999	23.21	24.68	22.75	24.32
4,000 - 4,999	8.65	10.68	7.55	8.87
5,000 - 7,499	17.78	19.15	6.89	9.14
7,500 - 9,999	2.70	6.11	1.29	2.10
10,000 - 14,999	1.08	4.16	.53	.93
15,000 - 29,999	1.03	2.14	.24	.26
30,000 - 49,999	.15	.27	.04	.02
50,000 - 74,999	-	.10	-	.01
75,000 or more	-	.01	-	-
Total	100.00	100.00	100.00	100.00
Average Monthly Expenditure per Capita (Rp.)	3,619	4,470	2,818	3,037

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 15.

/a Agriculture is primary source of household income.

/b Nonagriculture is primary source of household income.

Table 4.9: DISTRIBUTION OF HOUSEHOLDS BY AVERAGE MONTHLY EXPENDITURE PER CAPITA AND SOURCE OF INCOME, INDONESIA, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban						Rural					
	Agricul. only	Mixture, with agricul. the primary means	Mixture, with non-agri. the primary means	Non-agri. only	Not Stated	Total	Agricul. only	Mixture, with agricul. the primary means	Mixture, with non-agri. the primary means	Non-agri. only	Not Stated	Total
0 - 999	14.5	0.0	3.0	82.6	0.0	100.0	63.7	12.9	7.2	15.9	.3	100.0
1,000 - 1,999	10.8	2.2	2.6	84.4	0.1	100.0	56.0	13.5	7.7	22.7	.2	100.0
2,000 - 2,999	10.4	1.8	2.2	85.7	.0	100.0	55.7	11.7	8.4	24.0	.2	100.0
3,000 - 3,999	7.7	1.1	1.9	89.3	.0	100.0	54.1	10.5	8.6	26.7	.1	100.0
4,000 - 4,999	6.3	1.4	1.6	90.8	.0	100.0	53.6	8.5	8.1	29.1	.7	100.0
5,000 - 7,499	7.9	.8	1.2	90.1	.0	100.0	51.8	7.7	8.0	32.3	.2	100.0
7,500 - 9,999	3.8	.5	1.8	93.7	.1	100.0	49.7	4.9	6.4	39.0	.0	100.0
10,000 - 14,999	2.5	.1	1.7	95.7	.0	100.0	49.4	3.1	3.3	44.2	.0	100.0
15,000 or more	4.4	.2	1.4	94.0	.0	100.0	59.5	6.0	7.3	27.2	.0	100.0
Total	8.2	1.2	1.9	88.7	.0	100.0	54.9	11.1	8.1	25.6	.2	100.0

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 15.

areas, however, only slightly more than half of the households rely entirely on agricultural income; the rest rely on non-agricultural sources of income to varying extents, with 26% having all their incomes from the non-agricultural sector. The fact that 45% of households in rural areas derive some income from non-agricultural activities strongly suggests the difficulty that many households find in satisfying their consumption needs through agricultural activities alone.

From Table 4.10 where the distribution of households by per capita consumption expenditure class is given for each category of households classified by source of income, it appears that, for urban and rural households deriving their income primarily from agriculture or non-agriculture alone, those whose incomes come from a mixture of agricultural and non-agricultural sources are more likely to be found at the lower end of the consumption distribution. In urban areas 32% of households whose incomes are entirely from non-agricultural sources are in the per capita expenditure class of under Rp 3,000 per month, compared with 42% of households whose primary source of income is non-agricultural but which have additional income from agricultural activities. Among households in rural areas whose primary source of income is agriculture, 60% of those relying on agricultural sources alone are in the under Rp 3,000 per month class, compared with 66% of the households with income from both sectors.

Economic Growth and Poverty

In the first part of this section, it was shown that between 1970 and 1976 average household consumption expenditure per capita in real terms went up in both urban and rural areas of Java and Outside Java. Moreover, this general increase in per capita consumption for the population as a whole was accompanied by increases at the lower end of the per capita consumption distribution and a reduction of poverty, as measured by the proportion of the population or by the absolute number of persons below various low levels of per capita consumption. From the evidence of these aggregative measures it is clear that in absolute terms the benefits of growth have been shared by even the lowest income groups of the population. While such findings are an encouraging aspect of recent Indonesian economic development, they hardly constitute a complete picture of the poverty problems confronting the country. Other aspects are not so encouraging.

Even without direct statistical evidence on trends in income distribution, there are strong indications of a marked increase in relative income inequality. First, the differential in per capita consumption between the urban and rural populations has been widening in both Java and Outside Java. Since the rural population started from an already inferior position relative to the urban population, such a deterioration is a cause for concern. A growth rate of 2-3% per annum in per capita real consumption, such as was experienced in the rural areas of Indonesia between 1970 and 1976, was admittedly preferable to no growth or a decline in real terms, but it is hardly impressive when compared to the corresponding urban rate of 4-7% a year. Real consumption growth so much lower for the poorer four-fifths rural population than for the better-off urban one-fifth implies a severe increase in the disparities between consumption levels of the two groups.

Table 4.10: DISTRIBUTION OF HOUSEHOLDS BY SOURCE OF INCOME AND AVERAGE MONTHLY EXPENDITURE PER CAPITA, INDONESIA, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban					Rural				
	Agricul. only	Mixture, with agricul. the primary means	Mixture, with non-agri. the primary means	Non-agri. only	Total	Agricul. only	Mixture, with agricul. the primary means	Mixture, with non-agri. the primary means	Non-agri. only	Total
0 - 999	1.14	-	1.01	.59	.63	2.09	2.08	1.59	1.12	1.80
1,000 - 1,999	14.84	19.62	15.74	10.55	11.11	23.59	28.14	21.78	20.50	23.14
2,000 - 2,999	28.60	31.75	25.66	21.36	22.14	34.04	35.34	34.85	31.50	33.60
3,000 - 3,999	23.48	21.73	25.09	24.68	24.54	22.91	21.95	24.50	24.26	23.25
4,000 - 4,999	8.20	11.67	8.87	10.72	10.49	7.84	6.13	8.02	9.14	8.04
5,000 - 7,499	18.66	12.23	12.49	19.29	19.02	7.21	5.32	7.50	9.66	7.65
7,500 - 9,999	2.78	2.23	5.71	6.12	5.80	1.42	.69	1.23	2.38	1.56
10,000 - 14,999	1.18	.42	3.59	4.17	3.87	.60	.19	.27	1.14	.66
15,000 - 29,999	1.14	.35	1.53	2.15	2.04	.26	.14	.23	.27	.25
30,000 - 49,999	.17	-	.28	.27	.26	.05	.01	-	.03	.04
50,000 - 74,999	-	-	.03	.10	.09	-	-	.02	-	.00
75,000 or more	-	-	-	.01	.01	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 15.

Second, the per capita consumption data point to a large increase in the degree of inequality within urban areas and a small decrease within rural areas. Taking into account also the widening urban-rural disparity, this suggests a significant increase in overall consumption inequality in Indonesia between 1970 and 1976 that very likely reflects an even larger increase in income inequality.

Finally, other evidence points in the direction of growing inequality in the distribution of income. From the absence of any discernible upward movement in real wage levels noted in the previous sections during a period of rapid growth in average productivity and production, it may be inferred that profits and property incomes were growing at an even faster rate, to the benefit of those generally concentrated at the upper ranges of the income distribution. Inflation may also have contributed to increased inequality because of the more rapid increases in prices of food which constitutes the bulk of expenditure for low-income households.

None of this evidence pointing toward an overall deterioration in terms of relative consumption and income in any way obviates the finding that in absolute terms consumption levels have risen for all groups and there has been a sizeable reduction in the number of people at the lowest levels of consumption and income. However, such improvements, substantial as they have been, still amount to only a tiny diminution of the problem of poverty in Indonesia. From the proportion of the population in 1976 with per capita consumption expenditure below Rp 3,000 per month, or less than US\$0.25 per day, one can estimate that there were 2.6 million persons in urban Java, 35.4 million in rural Java, 1.0 million in urban areas of Outside Java and 11.1 million in rural areas of Outside Java, or 50.1 million people altogether, existing on less than US\$0.25 per day. Even with substantial improvements, therefore, Indonesia still faces a severe problem of poverty.

Moreover, many observers of Indonesia have drawn attention to the plight of different subgroups of the population who appear not only to have been left out of the growth process altogether, but also to have been forced into a less favorable position relative to those who have made economic gains. For millions of people the prospect of any early escape from poverty is not bright and for some their economic position may worsen over time.

There is little dispute over the fact that the adoption of more productive techniques may adversely affect some groups. Examples of labor displacement have been cited in earlier sections and additional evidence is provided in a number of recent studies. ^{1/} Shifts to more modern techniques

^{1/} See e.g. Irlan Soejono, "Growth and Distributional Changes of Incomes in Paddy Farms in Central Java, 1968-74," Bulletin of Indonesian Economic Studies, Vol. 12, No. 2, July 1976; Palmer. op. cit.; William L. Collier, Harjadi Hadikoesworo and Marie Malingreau. "Economic Development and Shared Poverty Among Javanese Sea Fishermen," paper prepared for the Agricultural Economics Society of South Asia's biennial meeting at Iloilo, the Philippines on November 2-6, 1977, p. 7; Collier. "Technology and Peasant Production: A Comment," Development and Change, Vol. 8, No. 3, July 1977; John W. Duewel. Socio-economic Analysis of the Provincial Area Development Program (Program Pembangunan Daerah - PPD) for Central Java, August 1977.

and greater commercialization also disrupt traditional arrangements for sharing and for providing social support. Effects of this sort associated with the shift to the tebasan system of rice harvesting have already been commented upon; similar effects have been documented, for example, in a study of modernization and commercialization of the Javanese fishing. 1/

There is also a variety of evidence that the benefits of economic change, at least in the first instance, tend to be concentrated on those groups already in a relatively superior economic position and therefore better placed to take advantage of new opportunities. In a discussion of the sensitivity of high-yielding varieties of rice to farming practices, Collier 2/ suggests that "in Java the main restraint to increased production and use of the modern varieties may be class differences in the rural villages" and argues that those who control large operations may be favored in receiving credit and input services, so that the smaller operators may be prevented from participating in the green revolution. In another study, Duewel 3/ points out that although improvements in irrigation have in some places brought benefits to the smaller farmers, there is evidence that the larger farmers have benefited more because of "their favorable location near secondary canals and their ability to manipulate water delivery." Mubyarto 4/ also reports that credit granted by government banks to enable farmers to use the new technology could be used more efficiently by the larger farmers, and that there is evidence that small farmers who own less than 0.3 hectares of land have greater difficulties in obtaining cheap government credit than the larger farmers. Similarly, Penny and Singarimbun 5/ observe that large farmers have benefited from fertilizers more than small farmers. Sajogyo's findings (reported by Duewel) 6/ from the rice intensification studies of the Agro-Economic Survey indicate that farm size was the key variable in explaining why most of the peasant households had not tried the high-yielding varieties of rice. For farmers operating on less than 0.5 hectares of land, the investment capital required for the high-yielding varieties was too high.

Because the poor operate at the margin of subsistence, it is not surprising to find that they place high priority on current compared to future income and have a high aversion to risk; they are reluctant to take action which subjects them to the risk of becoming worse off than they are to begin

1/ Collier. et al, op cit.

2/ Collier. op cit, p. 352.

3/ Duewel. op cit, p. 72.

4/ Mubyarto. Rural Poverty, the Small Farmer Problem and Rural Development Strategy in Java, Institute of Economic Research, Faculty of Economics, Gadjah Mada University, Jogjakarta, December 1975, p. 4.

5/ D.H. Penny and Masri Singarimbun. "A Case Study of Rural Poverty," Bulletin of Indonesian Economic Studies, Vol. 8, No. 1, March 1972, p. 85.

6/ Duewel. op cit.

with. Mubyarto 1/ gives an example of the Indonesian government's pilot project of cattle fattening, in which farmers are provided with credit to purchase young cattle to be raised and then sold six months later, when they would get the maximum return on their investment. But the farmers find it more appropriate that their cattle should contribute to their current income. Instead of keeping their cattle in the pen all the time, as advised by the agricultural extension workers, they use them to plough or to pull carts. As a result the cattle do not gain sufficient weight during the six-month period and the farmers may face problems in repaying their loans.

Other examples are the use of the small-meshed nets by traditional fishermen, which has contributed to the depletion of the stock of fish 2/ and the reported tendency among poorer households to plant substantial portions of their house gardens to roots and tubers, such as cassava and arrow root, having a low market value but also a low risk of crop failure. 3/ White 4/ has noted that the high degree of occupational multiplicity observed in Javanese villages helps to spread risks through continuous adjustments in the allocation of household labor to income-earning activities. He observes that "a certain minimal amount of regular income is accorded high priority in the daily choice of labor allocation than income maximization, at least for the majority of households who do not have sufficient savings to eliminate this constraint."

It would not be difficult to multiply examples of the vulnerability of the poor to adverse consequences from economic change. For millions of the poor living on the margin of subsistence, any disruption, even if slight and temporary, in their means of securing a livelihood can have disastrous consequences for those involved. And the process of economic growth inevitably entails such disruptions which many will find difficult or impossible to weather without severe cost and suffering. These personal costs and sacrifices suffered by particular low-income groups cannot be captured in aggregate or average measures of increases in consumption or living standards. If the benefits of economic growth are to be shared more equitably, policies must be designed to address the particular situations confronting specific groups in order to offset some of the deleterious effects of changing economic circumstances, and to ease the burdens of adjustment to new and more remunerative activities.

1/ Mubyarto. op cit, p. 17.

2/ Collier. et al, op cit.

3/ Duewel. op cit, pp. 84-85.

4/ Cited in Duewel. op cit, p. 74.

V. EMPLOYMENT POLICY ISSUES IN INDONESIAN DEVELOPMENT

What implications can be drawn from the experience of the recent past for the magnitude and character of the employment and poverty problem that Indonesia will confront in the coming years? What policy directions should be followed and what policy instruments are available or might be fashioned to meet the challenges that these problems pose? The complexity and diversity of Indonesian labor markets, the conflicting interpretations that can be placed on developments during the past 5-10 years and the unavailability of reliable statistical data in crucial areas make it certain that no simple or definitive answers to these questions can be expected. In addition, it is difficult to frame specific programs or policy instruments in the area of employment without more detailed knowledge and familiarity with the workings of Indonesian labor market institutions and with the administrative and other constraints on effective government intervention than any group of outside observers could hope to accumulate in a relatively brief period of study. The objective in this section is, therefore, merely to sort out in preliminary fashion some of the employment issues that warrant systematic attention in the formulation and implementation of development policy in Indonesia.

Development Policy and Employment

Employment policy in the broad sense cannot be separated from other aspects of economic development policy; the levels and patterns of employment and incomes are bound to be heavily influenced by policy actions in other areas. While it is useful for some purposes to distinguish a more narrowly defined range of issues where interest is focused on specific aspects of labor markets and particular groups in the work force, this does not mean that employment policy measures in this narrower sense can be evaluated without reference to the broader context in which they will operate. Indeed, most of the difficulties of formulating policies in these areas are those of establishing the appropriate role for specific measures in relation to the larger economic context in which they are implemented. In addition, the overwhelming importance of labor incomes for the economic welfare of the bulk of Indonesian households should not be permitted to blur the essential distinction between employment problems and the more general problems of poverty and income distribution. The relationships between employment and poverty are neither simple nor direct and employment policies whether broadly or narrowly conceived cannot completely substitute for other measures directed toward the alleviation of poverty or the achievement of greater equity in the distribution of income.

Prospective Growth in Aggregate Labor Supply

Despite the evidence of deceleration in the rate of population growth, it will be some years before a corresponding decline can be expected in the growth of the labor force. Recent population projections (see Annex 1) indicate that the rate of growth of the working age population has peaked during the 1971-78 period at about 2.7% per year. In the following five years until 1983 the annual rate of increase in the population of working age should

average around 2.4% per year but it will still remain significantly above the rate of population growth through the end of century. If these demographic changes are not offset by a sharp reversal in the recent trend toward higher labor force participation rates -- that is if sex and age-specific participation rates remain at the levels observed in 1976 -- the labor force can be expected to increase by 1.5 - 1.7 million annually over the next 20 years.

Unless migration from Java to other islands rises to a level far beyond that observed to date about 65% of these increases in the labor force in the 1978-83 period will occur on Java. However, this fraction is projected to decline thereafter (to around 50%) as a consequence of the more rapid deceleration of population growth on Java compared to other Islands.

From these indicators of the prospective growth of labor supply, the problem Indonesia faces of providing increasingly productive employment for growing numbers of workers will be roughly of the same order of magnitude in absolute terms over the 1978-83 period and beyond as in the last decade and the most acute problems of growing labor supply pressure on densely populated Java will be eased only slightly by the relatively slower growth in the Javanese population and labor force. While the experience of the last few years is encouraging evidence of the capacity of the Indonesian economy to absorb increases in labor supply of this order of magnitude, that experience cannot be simply extrapolated to a sanguine view of the future.

The substantial increases in employment, the rise in real living standards, and the apparent decline in the number of households at extremely low levels of per capita consumption that has taken place since 1971 are, it seems clear, almost entirely the result of the responsive adaptations of the work force to the rising demand for labor associated with accelerated growth in investment, output and incomes. It is not so clear that either the pace or pattern of development that produced these relatively favorable aggregative results can be maintained.

Employment Aspects of Agricultural Development Policy

The rapid rise in agricultural output and incomes during the years 1971-1976 was a singularly important influence on the employment situation in that period. The aggregate employment picture would have certainly appeared much less favorable if the numbers employed in agriculture had grown at an annual rate significantly below that actually observed. The annual rate of employment growth in agriculture of 1.5-3.5% was higher than previously anticipated and there are reasons to expect it to decline in the future.

In the first place the vigorous growth in agricultural output and the intensification of agriculture are linked to factors such as the spread of HYV's and the rehabilitation and upgrading of irrigation systems whose influence must be expected to diminish in the future. Secondly, as noted in some detail earlier, there is evidence of the increasing spread of labor displacing techniques in farming operations and practices which can be

Table 5.1: PROJECTIONS^{/1} OF TOTAL POPULATION, WORKING AGE POPULATION AND LABOR FORCE, 1971-2001
(in millions)

	1971	1978	1983	1991	2001
<u>JAVA</u> ^{/2}					
Population Total	76.1	86.0	94.0	107.3	122.0
Population Age 10+	52.3	62.9	70.3	82.1	97.4
Labor Force	26.4	33.9	38.6	46.1	54.7
<u>OUTSIDE JAVA</u> ^{/2}					
Population Total	43.1	50.5	56.2	69.1	88.2
Population Age 10+	28.6	34.6	39.4	48.7	63.7
Labor Force	14.0	18.4	21.1	26.5	34.8
<u>INDONESIA</u>					
Population Total	119.2	136.5	150.2	176.4	210.2
Population Age 10+	80.9	97.5	109.7	130.8	161.1
Labor Force	40.4	52.3	59.7	72.5	89.5

/1 Population figures refer to September and are derived from the projections included in the Annex on Population Trends and Prospects. For 1991 and 2001 no distinction is made between year-end and September figures. Labor force is calculated by applying the age-specific participation rates observed in September 1976.

/2 Estimates for Java and Outside Java are based on assumed natural rates of population growth in the two areas and do not take into account the possibility of any future significant net out migration from Java.

Sources: Appendix Table A-5 (September 1971), Annex 1, Table 17(c) and 17(d) (year-end population projections), Sam Suharto and Hananto Sigit, "Condition of Population and Manpower in Indonesia," Central Bureau of Statistics, December 1977.

Table 5.2: ANNUAL RATES OF GROWTH OF THE POPULATION, WORKING AGE POPULATION AND LABOR FORCE, 1971-2001

	1971-78	1978-83	1983-91	1991-2001
<u>JAVA</u>				
Population Total	1.8	1.8	1.7	1.3
Population Age 10+	2.7	2.3	2.0	1.7
Labor Force	3.6	2.6	2.2	1.7
<u>OUTSIDE JAVA</u>				
Population Total	2.3	2.2	2.6	2.5
Population Age 10+	2.8	2.6	2.7	2.7
Labor Force	4.0	2.8	2.9	2.8
<u>INDONESIA</u>				
Population Total	2.0	1.9	2.0	1.8
Population Age 10+	2.7	2.4	2.2	2.1
Labor Force	3.8	2.7	2.5	2.1

Source: Calculated from Table 5.1.

expected to reduce the employment elasticity of future increases in agricultural output. Finally, an increasing proportion of future agricultural growth will be associated with the development of areas Outside Java where relative factor endowments are likely to make inefficient the use of techniques as labor intensive as those currently employed on Java. In sum the possibly accelerating decline in the relative importance of agriculture as a source of additional demand for labor, the prospects for a higher rate of labor displacement in agricultural operations, and shifts in the locational pattern of the demand for agricultural labor all point to even heavier burdens of adjustment on low income rural workers in the future than they have been faced within the immediate past.

The problems connected with any slackening in the growth of direct demand for labor in agriculture will not, of course, be confined to that sector. Although impossible to determine quantitatively the demands for labor generated by the increased incomes earned in agriculture must have been a major influence on employment growth in rural areas--enabling an increasing proportion of rural workers to find sources of income and employment in non-agricultural activities. Since these demands have been widely dispersed throughout the rural areas, they could provide the basis for the rapid expansion of extremely small-scale, local activities observed in manufacturing and service sectors of rural areas. While this expansion in non-agricultural employment may have prevented any declining trend in rural wage levels it was not sufficient to produce a rate of rural income growth equal to that in urban areas. Moreover, the pressure of labor supply at the unskilled levels appear to have kept urban unskilled wages from rising as well. The resulting increases in disparities between rural and urban income levels and, within urban areas, between the income of lesser skilled workers and those of other urban groups are already a cause for concern. These trends toward widening disparities will gain in importance if they continue and, perhaps, accelerate as agriculture become relatively less important in the economy and the future sources of employment and income growth become more concentrated in non-agricultural sectors in and around urban centers.

All this underscores the importance of agricultural development policies designed to broaden the participation of rural groups in the process of achieving higher levels of output and income. In particular careful attention is required to the impact of agricultural growth on the structure of landholdings and tenure conditions and the avoidance of undesirable increases in the concentration of wealth and income in the agricultural sector. Since the process of agricultural development will, in any event, involve substantial shifts in patterns of labor use, it becomes increasingly important to avoid measures that directly or indirectly distort incentives toward too rapid an introduction of labor displacing techniques. In some cases, positive disincentives through tax or tariff policies may be justified to moderate the pace if not the direction of movement toward less labor demanding techniques.

Perhaps most crucial, however, is the recognition of the growing importance of non-agricultural employment alternatives to the rural population even though they may remain dependent on agriculture as the principal source of employment and income. A balanced policy toward agricultural development, therefore, cannot be formulated in isolation from policies concerned with the growth of labor demand in non-agricultural sectors. Of most immediate direct relevance are public employment programs such as INPRES (whose role will be discussed further below) which are designed to provide additional earnings opportunities particularly in rural areas. But more decisive in the long term are the whole range of industrialization and regional development policies which lie at the center of the problem of Indonesian development strategy.

Industrialization, Regional Development and Employment

It is an obvious but nonetheless important fact that most employment in Indonesia has been and will presumably continue to be provided by private sector enterprises. It follows that it is those government actions directly and indirectly influencing the level and pattern of labor utilization by private employers that will be of greatest importance in determining future employment and earnings prospects. Employment considerations alone cannot, of course, dictate fundamental policy decisions affecting the division of investment between public and private sectors, the regional location of publicly financed infrastructure, the sectoral allocation of investment, or the balance between small and large enterprise. But the employment implications of such decisions are important elements that should shape those decisions.

For example, a distinctive feature of recent employment experience that has been emphasized in this report is the apparent proliferation of extremely small enterprises in the manufacturing and service sectors particularly in rural areas. Employment growth in large- and medium-scale enterprises, has so far as can be determined, been low even though they have probably accounted for the major share of the increment in non-agricultural output in recent years. At least this appears to be the case in manufacturing where it has been estimated ^{1/} that over 90% of the increase in manufacturing output between 1973 and 1975 originated in large- and medium-scale enterprises. This pattern raises the question of a possibly excessive concentration of investment in capital intensive industries to the detriment of both growth and employment objectives. From the point of view of employment, an industrialization strategy which gave greater emphasis to more labor intensive light manufacturing industries would offer greater opportunities for avoiding the inefficiencies and inequities likely to result from a continuing trend toward a highly concentrated or "dualistic" industrial structure. In addition insofar as a less concentrated process of industrial development was conducive to greater dispersion in the location of industry it would reduce the direct and indirect costs of shifting labor to a few primary centers of economic growth.

^{1/} World Bank, "Problems and Prospects for Industrial Development in Indonesia", Vol. I, (May 25, 1978), Table 1.4, p. 78.

The growth and modernization of small- or medium-scale establishments such a shift toward a less concentrated, more widely dispersed and less capital intensive path of industrial development would entail might well increase the vulnerability of many of the extremely small, more traditionally organized enterprises. The displacements of labor which are bound to result from the competition of more productive and more modern enterprises make it all the more important that the mechanisms for adjustment in both product and factor markets are able to operate effectively without distorted incentive structures or obstacles to the efficient use and reallocation of labor.

Similarly, basic employment issues need to be confronted in major policy actions regarding regional development and the location of investment. Given the concentration of population and labor force on Java and a continuing or even accelerating relative decline in the demand for labor in Javanese agriculture the pace and pattern of the demand for labor in industry and other non-agricultural activities on Java will become increasingly decisive determinants of future earnings and employment opportunities for the bulk of the Indonesian work force. Even if outmigration from Java rises substantially beyond historically observed levels, a major fraction of the increase in the labor force will continue to occur on Java. Consequently, notwithstanding the contribution enlarged transmigration programs can make to relieving labor supply pressures on Java, the core employment issues will continue to be dependent on the rate and structure of Javanese industrialization. And it is the whole range of government policies affecting this industrialization process--investment, trade, infrastructure, fiscal, monetary, wage and price policies--that will be crucial determinants of future levels of labor incomes and employment. However, the indications of slowing rates of population and labor force growth on Java suggest that, over the longer term, labor supply pressures may become relatively more acute Outside Java.

Labor Market Regulations and Wage Policies

The aggregate employment response to the high levels of economic growth of recent years testifies to the fundamental resilience and effectiveness of the relatively unconstrained labor markets in Indonesia. By and large the work force has been able to adapt to the changing structure of economic opportunities and market incentives that has apparently led to increasing levels of average incomes and kept the level of open unemployment low. So far as one can tell from the evidence, labor markets have been effective in guiding substantial reallocations of labor and have not been the source of major wage and price distortions. If there is a general lesson for future economic policy to be derived from this experience it is perhaps the importance in an economy like that of Indonesia of avoiding policy measures that introduce undesirable constraints into labor markets and limit workers access to new employment opportunities or discourage employers from maximizing the economically efficient expansion of those opportunities.

This does not imply an renunciation of active employment policies in favor of exclusive reliance on completely unregulated market mechanisms. The judgment that Indonesian labor markets have functioned fairly effectively is not to say that they are perfectly competitive. Uncertainties and lack

of reliable and comprehensive information are inherent difficulties workers face in adapting to a changing economic environment. Under conditions where labor supply pressures are high, where the lack of resources makes large numbers of the work force vulnerable to the adverse effects of economic change and unable to pursue new employment alternatives, there are bound to be numerous situations in which employers can exploit positions of economic power to the detriment of the workers.

Measures directed to the protection of workers' interests through improvements in the structure and operation of labor markets are inherently difficult to formulate and implement effectively and these difficulties are compounded by the scarcity of information about the structure and operation of specific labor markets in Indonesia. Government intervention to protect workers by imposing standards for wages and working conditions may, in the absence of careful analysis of the direct and indirect impact in specific labor market situations, prove to be self-defeating. There is a danger of accentuating rather than diminishing the differences between workers in relatively advantageous or protected situations and those less well placed. This danger is particularly acute where, as in Indonesia, most employment does not have the character of formally organized and stable employer-employee relationships and there are severe limits on the feasible scope for effective enforcement of labor market regulations or legislated labor standards.

The Indonesian government has been justifiably cautious in its approach to national minimum wage legislation preferring to move in the direction of differentiated wage standards administered through regional wage councils and provincial governments. It is difficult for such a differentiated system to avoid introducing arbitrary elements into the structure of wage-employment relationships without much more extensive knowledge about the operation of labor markets than is now available. The absence of factual information increases the likelihood that the process of standard setting will rely on economically inappropriate criteria that fail to take into account the actual impact on employment and incomes in those areas where wage regulations can in fact be enforced. And the unevenness of enforcement because of limitations of administrative resources will add to rather than lessen wage disparities and inequities. Under the circumstances, it would seem preferable to concentrate, in the first instance, on improving the factual foundation and administrative resources for governmental action and to limit that action to those specific situations where it can be firmly established that regulatory measures will in fact have desired beneficial effects on the employment and incomes of low income workers.

Underlying this approach to wage and labor market regulation is recognition of the administrative impossibility under prevailing circumstances of establishing any comprehensive and effective direct governmental control over the level and structure of wages. Wage policy in Indonesia, therefore, necessarily must have a partial and indirect character and government policies that influence the general level and structure of labor supply and demand should be recognized as being of more decisive importance for wage and employment developments than direct labor market regulation.

Public Investment Programs to Provide Employment

The principal public investment efforts in Indonesia in which the expansion of employment opportunities has been a major objective are the various more or less decentralized social and economic infrastructure programs grouped under the general label of INPRES programs and the program of transmigration of settlers from Java to newly developed areas in the other islands. Both of these have been examined recently in separate Bank reports so that in this report we confine ourselves to some brief general comments on their role and significance for employment developments.

In terms of employment objectives the two programs differ markedly with INPRES programs much more concerned with the creation of short-term employment for the local population in construction activities while the transmigration programs seek to provide permanent means of livelihood for resettled families. In both, however, employment creation is not considered as a separate or even dominant objective. The INPRES programs are seen as a means of mobilizing labor resources for improvements and extensions of local social and economic infrastructure while transmigration programs are also intended to serve regional development objectives by opening up new lands in the more sparsely populated areas.

The INPRES programs have been by far the most important in their influence on the employment situation. It has been roughly estimated ^{1/} that the total employment generated by the INPRES programs (including employment in production of local materials) may have revealed a level in 1976/77 and 1977/78 equivalent to about 1% of total employment in Indonesia. While these estimates which are derived indirectly from information on expenditures, wage rates and the labor context of materials production probably overstate the actual employment provided under the INPRES programs they confirm that the magnitudes involved are substantial.

The greater significance of these programs for employment, however, probably lies in the indirect effects of the expenditures on local infrastructure widely dispersed throughout the country. It is impossible to quantify the economic impact of the myriad small projects which have been undertaken but there is no doubt that they have been an important factor in the rising demand for labor observed during the 70's especially in rural areas. A large proportion of the allocations under the two largest programs (INPRES Kabupaten and INPRES Provinsi) have been for roads and irrigation works. The improvements in the economic base and the extension of markets and transport must have contributed to an increase in the quantity and range of additional employment opportunities available to the rural work force. Moreover, the short-term employment offered by these programs may have eased the problems involved in shifts from agricultural to non-agricultural activities which has been such a pronounced feature of recent employment developments.

^{1/} World Bank, "Indonesia INPRES Programs", Report No. 2093-IND, June 15, 1978, Table 16, p. 27.

The undoubted value of these programs as instruments for attaining a more decentralized and more widely dispersed development leaves open the question of their future role. The INPRES allocations have increased since the early 70's to a level where they now amount to over one-fifth of the substantially enlarged total development budget of the central government. The new programs added in recent years for primary schools, health, forestry and markets now account for close to half of the total allocations. Both the increased size of the programs and the difficulties of maintaining efficient use of the funds as the programs are extended add to the importance of evaluating their future role more in terms of the assets created than of the increased short-term employment they provide. The problems that the forestry program has apparently run into illustrate the dangers of failure to assure that projects have a sound technical and economic justification.

Although the past successes with the INPRES programs certainly argue for their continuation and extension as an important part of the government investment program, constraints on implementation capacity and possibly resource availability are sufficient reason to slow their rate of growth. But with increasing emphasis on their role in stimulating the creation of directly and indirectly productive infrastructure investments their total contribution to the development process need not diminish appreciably despite the relative decline in the direct influence on the employment situation.

Unlike the INPRES programs, transmigration programs have had only minimal significance for the general employment situation so far. And in view of the organizational and institutional difficulties which are involved in increasing the number of families transmigrated each year to a level that would constitute a significant fraction of the annual increment in the labor force, it is apparent that employment expectations based on the transmigration program should be cautious for a number of years. Yet it is equally apparent that a well conceived program of transmigration could be a cost effective element of any long-term employment oriented development strategy. Much more crucial are the regional development objectives and potentials in the areas of new land settlement and fundamental issues connected with the overall allocation of investment resources among sectors and regions.

In this perspective the important employment aspects of transmigration are not so much connected with the overall size of the programs as with the selection of settlers and the impact of that selection in improving conditions in specific, localized areas in Java. In those severely depressed agricultural areas where the pressure of population on land resources are particularly high and the availability of alternative non-agricultural employment opportunities are particularly low, transmigration can provide much needed relief for families facing destitution.

Training and Education

In this report we have been able to devote little attention to problems concerned with the improvement in the levels of education and skills embodied in the work force. Yet one implication that emerges from the analysis in the report is the crucial importance of workers' education and training to future employment and growth prospects and therefore as an areas for

positive policy interventions by the government. The processes of the re-allocation of labor to different and more remunerative activities require and are dependent on the ability of workers to take advantage of new opportunities and to acquire new and higher levels of skills. In these broad terms the role of basic education in increasing workers' capabilities for adapting to changing circumstances for learning new techniques on and off the job justifies continuing emphasis on primary education. More complex and difficult problems arise, however, in fashioning policies to encourage the development of specific skills. Formal vocational training programs can play only a limited, although important, role. Most training takes place on-the-job and such training has the added advantage that it is usually is directly responsive to the evolving pattern of labor demand. While this complicates the problems of formulating effective government support of training activities it does not lessen their importance as a focus for potential government action.

With the present structure of Indonesian manufacturing and service industries where most employment is in extremely small enterprises it is probable that too little attention is given to improving the skills and productivity of workers on the job. A small or marginal enterprise has few resources to devote to such efforts and little incentive since the acquisition of higher skills by a worker may increase the probability of his seeking employment elsewhere. ^{1/} On the other hand, larger enterprises may tend to concentrate their training efforts on very specific sorts of skills that have limited transferability outside the particular operations on which workers are employed.

For these reasons, and because of the critical importance skill acquisition to the pace and efficiency of the industrializing process in Indonesia, the possibilities for government initiatives to provide additional incentives or resources for job training deserve serious and sustained consideration. The specific forms that government action might take will have to be determined in conjunction with the full range of policies affecting the structure and composition of the industrialization process in Indonesia.

Concluding Remarks

There is too little information and too much uncertainty about underlying influences on labor supply and demand and the operation of labor markets to permit more than speculative conclusions about the future evolution of the structure of employment and labor incomes. Nevertheless, some tentative generalizations about prospective developments may be ventured.

^{1/} The theoretical argument can be made that acceptance by workers of reduced wages during the period of training would provide employers with the necessary incentives. But the imperfection and uncertainties in the actual operation of labor markets are sufficient reason to doubt that an optimal amount of training will in fact take place.

First of all, it is difficult to see for the near term future a pattern of development in the supply and demand for labor to justify any expectations of substantial and sustained increases in real wages for the unskilled. The growth in the working age population together with a perhaps accelerating decline in the relative demand for agricultural labor can be expected to maintain the substantial pressure of labor supply in markets for unskilled labor. Moreover, it is unlikely that increases in labor force participation rates of the magnitude that appear to have taken place in the early 70's will continue to serve as a major means for augmentation of household incomes. Therefore the extent to which lower income workers can look forward to sharing in the benefits of future economic growth will be very much dependent on the expansion in the demand for labor in somewhat more skilled occupations and the ability of workers to shift to these more productive activities. In other words, earnings prospects for the poorer groups in the population particularly outside agriculture are likely to be mainly determined by increases in the quality of employment opportunities to which they can aspire rather than by increases in the demand for completely unskilled labor and consequent increase in unskilled wage rates.

The experience of the past years has demonstrated the resourcefulness and initiative of the Indonesian workforce in responding positively to the opportunities for economic advancement in new and different lines of activity. That experience provides reasonable grounds for optimism that even with a fairly constant level of real wage rates substantial improvements in the incomes and earnings of a large proportion of the workforce can take place through development policies which emphasize the growth of better jobs rather than just more jobs at the lowest levels of productivity and pay. In the absence of detailed information on the occupational wage structure and the differential returns to skill and education, it is impossible to quantify the contribution such compositional shifts and upgrading of the labor force can be expected to make to the growth of incomes of lower income households. But it can be expected to be substantial if an overall economic growth rate of 6-7% a year can be maintained along with a growth in non-agricultural sectors at a substantially higher rates.

For rates of output growth of these magnitudes to be translated into increased earnings opportunities for workers in the lower skill categories, careful attention will need to be paid to the patterns of capital and labor use in the industrializing process. The more economic growth can be based upon the efficient development of less capital intensive and less skill intensive production and techniques the greater will be the spread of income increases to the working population in the form of enhanced earnings opportunities.

Precisely because modernization and productivity growth is likely to entail the introduction of technologies that are less labor intensive than traditional techniques and whose direct or indirect effects may be labor displacing, particular care is needed to avoid excessive capital intensity. This involves appropriate factor pricing policies (e.g. positive real interest rates, strictly enforced repayment of credit) and tariff policies that do not

unduly favor capital goods. It also implies that direct and indirect effects on employment merit explicit consideration in major policy decisions both to ensure the efficient utilization of capital and labor resources and to minimize the costs imposed on workers by labor displacement. It is important to note that these employment questions are relevant to decisions across the whole range of government policy actions--to public investment decisions (Is it possible to reduce the concentration on capital intensive projects in favor of more labor intensive investments?); to regulations affecting private sector activities (Is banning becaks, for example, truly necessary for proper urban transport? Are there no intermediate alternative policies?); to the definition of required public facilities and standards (Can minor differences in the design of public buildings and roads lead to greater and more efficient use of labor?). But it is also apparent that employment considerations will not generally be the exclusive factors determining any individual decision or the formulation of general policies. The inherent complexity of the interrelationships involved requires a careful examination and balancing of employment concerns along with other objectives. What is needed are improved mechanisms whereby all government actions come under scrutiny in order to bring employment considerations to bear on all of them.

Introduction to Appendix Tables

The discussion on population, labor force and employment for the period 1961-1976 is based on the published information of the Population Census 1961 (Biro Pusat Statistik, Jakarta: 1963), Population Census 1971 (Biro Pusat Statistik, Jakarta: 1972), Intercensal Population Survey March 1976 (SUPAS) based on 257,100 households (Biro Pusat Statistik, Jakarta: Dec. 1977), and the National Labor Force Survey Sept-Dec. 1976 (SAKERNAS) based on 23,850 households each month (Biro Pusat Statistik, Jakarta: May 1978).

While the sources provide reliable information for the examination of basic population trends on a national basis, they present problems in establishing changes in labor force and employment. The 1961 and 1971 censuses use a different reference period for labor force data. In the 1961 census, a person was considered in the labor force if he classified himself "working", "looking for work", or having worked for at least two months during the six months prior to the census. In the 1971 census, Series C, a person was considered in the employed labor force if he worked at least one hour in two out of the seven days preceding the interview, and in the 1976 surveys, if he worked at least one hour during the week before enumeration. Although the 1971 census series C and the 1976 surveys use the same reference period of a week preceding the date of the interview, the 1976 intercensal survey was gathered during a different season from the 1971 census and the 1976 labor force survey. The 1971 census was taken during September, the slack season in Indonesian agriculture while the intercensal was taken during March, the peak season. ^{1/} Thus, in order to deal with problems of seasonality, we have attempted to estimate October 1976 labor force and employment by projecting March 1976 population and applying Sept-Dec. labor force and employment ratios from the labor force survey. The 1971 census figures can then be compared with 1976 estimates of the same season. This is explained in detail below.

The 1971 employment data were further complicated by the publications of two different series concerning those data. The first, Series C, was based on a 10% sub-sample of the census sample, and the second, Series E, was based on the full 3.8% sample of the total population. However, the prime difference between the two is in the imputations of the employment data. The employed population according to Series E was 1.6 million less than in Series C, while the unemployed population was 2.7 million more. Since the 1976 data are comparable to the 1971 Series C data, this series has been used in this report.

Only one adjustment was made to the original sources to account for comparability of coverage. The figure on population, labor force,

^{1/} The reference period for employment in the 1961 census clearly covers the peak season too.

and employment were increased by the estimated figures of areas excluded to cover all of Indonesia—these adjustments were made to obtain estimates roughly consistent with respect to geographical coverage for working purposes in this report, and should not be considered as revisions appropriate for use in other contexts.

Adjustments were made for total Indonesia, figures for Java/Madura remain unchanged, Outside Java is the difference between total Indonesia (adjusted) and Java/Madura (unadjusted). Adjustments for each year were made to rural population, labor force, employment for total Indonesia as follows:

1961 Population Census (Sept.)

Excluded Irian Jaya with an estimated population of 700,000. Adjustments for the exclusion of Irian Jaya were made by increasing rural area figures by the factor: $\frac{81,961 + 700}{81,961} = 1.008540647$.

Urban area figures remain unchanged. Total figures are the sum of urban (unadjusted) and rural (adjusted).

1971 Population Census (Sept.)

Excluded rural Irian Jaya with an estimated population of 773,000. Adjustments for the exclusion of rural Irian Jaya were made by increasing rural area figures by the factor: $\frac{97,695 + 773}{97,695} = 1.007912380$.

Urban area figures remain unchanged. Total figures are the sum of urban (unadjusted) and rural (adjusted).

1976 Intercensal Population Survey (March)

Excluded rural Irian Jaya, Maluku, and East Nusa Tenggara. The rural population in these areas in March 1976 was estimated to be 4,148,000 by applying to the 1971 population the same growth rate as between 1961-1971. Adjustments for the exclusion of these areas were made by increasing rural area figures by the factor: $\frac{102,763 + 4,148}{102,763} = 1.040364723$. 1/

Urban area figures remain unchanged. Total figures are the sum of urban (unadjusted) and rural (adjusted).

1/ An error was made in the growth rate of Maluku between 1961-71. If the correct growth rate of 3.3% had been used (instead of 2.5%), the adjustment factor would be: $\frac{102,763 + 4,191}{102,763} = 1.0407832$

and the total March 1976 population would be 130,284 thousand rather than 130,241 thousand. The 1976 figures on population, labor force, employment and the resulting October 1976 estimates do not incorporate this minor correction.

Population, Labor Force, Employment Estimates: October 1976

Population aged 10+ from the Sept-Dec. 1976 Labor Force Survey, even after adjusting for comparability of coverage, was lower than the March 1976 intercensal survey figure (90,874,000 in Sept-Dec. as compared to 91,776,000 in March). For this reason, we have estimated October 1976 population based on March intercensal figures; and labor force and employment using ratios from the labor force survey as follows:

- (a) Population figures for October 1976 were obtained by applying growth rates observed between September 1971 and March 1976 to March 1976 intercensal figures, separately for Java/Outside Java and urban/rural. Male and female population for October 1976 were estimated by applying March 1976 male/female ratios.
- (b) Labor force figures for male and female in Java/Outside Java, urban/rural for October 1976 were calculated by applying appropriate overall labor force participation ratios from Sept-Dec. 1976 SAKERNAS tables. Totals are the sum of various categories.
- (c) October 1976 employment for Java/Outside Java, urban/rural were obtained by applying appropriate employment rates from Sept-Dec. 1976 SAKERNAS. In addition, sectoral employment was calculated using the percentage distribution from SAKERNAS.

Alternative Labor Force, Employment Estimates for September 1971

The range in labor force and employment figures provided in the text reflects the observation that labor force participation rates reported in the September 1971 census are substantially lower than those reported for September 1961 (census) and Sept-Dec. 1976 (SAKERNAS). To provide alternative estimates for 1971 figures, rough calculations for labor force and employment have been made assuming that changes in the labor force participation rates observed between September 1961 (Census) and Sept-Dec. 1976 (SAKERNAS) occurred in a smooth fashion and that September 1971 figures could be approximated by a linear interpolation. For example, if male labor force participation rate in urban Java changed from 71.4% in 1961 to 62.5% in 1976, a decline was about .59 percentage points per year—the alternative 1971 labor force participation rate is calculated to be $71.4 - (.59 \times 10)$ or 65.5%. The following table shows the overall labor force participation rates for males and females in Java/Outside Java and urban/rural areas obtained in the above manner.

/1

Estimated Labor Force Participation Rates, September 1971
(Percent)

	<u>Urban</u>	<u>Rural</u>
<u>Java</u>		
Male	65.46	79.33
Female	26.91	36.92
<u>Outside Java</u>		
Male	65.91	76.25
Female	19.86	35.44

/1 Labor force participation rates have been estimated separately for male/female, Java/Outside Java, and urban/rural by a linear interpolation of participation rates observed between September 1961 (Census) and Sept-Dec. 1976 (SAKERNAS).

Source: Appendix table A-5.

The above overall participation rates were applied to male-female population aged 10+ (from 1971 population census) in urban/rural, Java/Outside Java to obtain the alternative labor force estimates. Appropriate employment ratios (from 1971 population census) were then applied to total labor force in urban/rural, Java/Outside Java to get total employment. Sectoral employment was calculated using the percent distribution of the employed by industry from the September 1971 census.

Appendix Table A-1

INDONESIA: TOTAL POPULATION BY AGE AND SEX, SEPT. 1961

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 4	1,203,185	1,175,996	2,379,181	7,320,759	7,467,603	14,788,362	8,523,944	8,643,599	17,167,543
5 - 9	1,007,993	990,127	1,998,120	6,732,554	6,706,084	13,438,638	7,740,547	7,696,211	15,436,758
10 - 14	700,002	684,037	1,384,039	3,649,446	3,203,964	6,853,410	4,349,448	3,888,001	8,237,449
15 - 19	735,948	710,266	1,446,214	3,124,629	3,190,813	6,315,442	3,860,577	3,901,079	7,761,655
20 - 24	714,332	731,279	1,445,611	2,761,414	3,638,133	6,399,547	3,475,746	4,369,412	7,845,158
25 - 34	1,148,568	1,242,836	2,391,404	6,237,873	7,361,606	13,599,479	7,386,441	8,604,442	15,990,883
35 - 44	830,464	763,302	1,593,766	4,931,151	4,639,319	9,570,470	5,761,615	5,402,621	11,164,236
45 - 54	455,036	444,143	899,179	3,130,481	3,065,139	6,195,620	3,585,517	3,509,282	7,094,799
55 - 64	239,693	247,475	487,168	1,671,976	1,616,611	3,288,587	1,911,669	1,864,086	3,775,755
65 - 74	94,007	115,840	209,847	707,716	719,278	1,426,994	801,723	835,118	1,636,841
75+	42,249	60,362	102,611	338,363	349,204	687,567	380,612	409,566	790,178
Unknown	11,132	10,100	21,232	49,166	47,168	96,334	60,298	57,268	117,566
Total	7,182,609	7,175,763	14,358,372	40,655,528	42,004,922	82,660,450	47,838,137	49,180,585	97,018,822

Source: 1961 Population Census Series, SP II, Tables 2.2 and 2.4 (Rural/Total figures adjusted for geographical coverage, see Appendix p. 2).

Appendix Table A-2

INDONESIA: TOTAL POPULATION BY AGE AND SEX, SEPT. 1971

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 4	1,644,471	1,582,016	3,226,487	8,071,918	7,988,942	16,060,860	9,716,389	9,570,958	19,287,347
5 - 9	1,492,911	1,428,479	2,921,390	8,148,482	7,928,492	16,076,974	9,641,393	9,356,971	18,998,364
10 - 14	1,290,477	1,278,558	2,569,035	6,083,581	5,667,520	11,751,101	7,374,058	6,946,078	14,320,136
15 - 19	1,217,520	1,200,110	2,417,630	4,460,467	4,584,253	9,044,720	5,677,987	5,784,363	11,462,350
20 - 24	852,649	924,752	1,777,401	2,724,516	3,508,300	6,232,816	3,577,165	4,433,052	8,010,217
25 - 29	793,236	832,752	1,625,988	3,265,602	4,209,506	7,475,108	4,058,838	5,042,258	9,101,096
30 - 34	695,445	696,279	1,391,724	2,992,299	3,561,674	6,553,973	3,687,744	4,257,953	7,945,697
35 - 39	633,266	672,782	1,306,048	3,412,847	3,415,156	6,828,003	4,046,113	4,087,938	8,134,051
40 - 44	513,637	489,077	1,002,687	2,509,596	2,556,838	5,066,434	3,023,233	3,045,888	6,069,121
45 - 49	396,602	358,998	755,600	2,017,949	1,904,370	3,922,319	2,414,551	2,263,368	4,677,919
50 - 54	309,010	315,290	624,300	1,591,087	1,644,589	3,235,676	1,900,097	1,959,879	3,859,976
55 - 59	189,994	182,043	372,037	890,916	886,232	1,777,148	1,080,910	1,068,275	2,149,185
60 - 64	142,436	168,663	311,099	898,663	1,028,294	1,926,957	1,041,099	1,196,957	2,238,056
65 - 69	84,338	95,870	180,208	454,032	493,735	947,767	538,370	589,605	1,127,975
70 - 74	68,835	76,338	145,173	425,927	497,324	923,251	494,762	573,662	1,068,424
75+	54,237	76,363	130,600	327,218	317,245	644,463	381,455	393,608	775,063
Not stated	3,975	3,890	7,865	-	-	-	3,975	3,890	7,865
Total	10,383,039	10,382,233	20,765,272	48,275,100	50,192,470	98,467,570	58,658,139	60,574,703	119,232,842

Source: 1971 Population Census Series C, Table 2 (rural/total figures adjusted for geographical coverage, see Appendix o. 2).

Appendix Table A-3

INDONESIA: TOTAL POPULATION BY AGE AND SEX, MARCH 1976

	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0 - 4	1,752,168	1,653,257	3,405,425	8,186,398	7,965,137	16,151,535	9,938,566	9,618,394	19,556,960
5 - 9	1,578,336	1,547,929	3,126,265	8,043,094	7,738,880	15,781,974	9,621,430	9,286,809	18,908,239
10 - 14	1,486,136	1,505,624	2,991,760	6,885,012	6,501,221	13,386,233	8,371,148	8,006,845	16,377,993
15 - 19	1,417,009	1,517,540	2,934,549	5,384,307	5,639,067	11,023,374	6,801,316	7,156,607	13,957,923
20 - 24	1,136,325	1,130,792	2,267,117	3,781,459	4,140,821	7,922,280	4,917,784	5,271,613	10,189,397
25 - 29	794,004	820,199	1,614,203	3,182,484	3,754,435	6,936,919	3,976,488	4,574,634	8,551,122
30 - 34	716,163	732,244	1,448,407	3,047,965	3,446,000	6,493,965	3,764,128	4,178,244	7,942,372
35 - 39	692,395	691,505	1,383,900	3,321,265	3,622,754	6,944,019	4,013,660	4,314,259	8,327,919
40 - 44	519,588	553,241	1,072,829	2,734,852	2,764,187	5,499,039	3,254,440	3,317,428	6,571,868
45 - 49	470,889	471,901	942,790	2,501,376	2,329,740	4,831,116	2,972,265	2,801,641	5,773,906
50 - 54	344,997	354,889	699,886	1,805,659	1,911,439	3,717,098	2,150,656	2,266,328	4,416,984
55 - 59	266,318	252,802	519,120	1,369,430	1,391,540	2,760,970	1,635,748	1,644,342	3,280,090
60 - 64	168,094	193,431	361,525	1,061,920	1,169,690	2,231,610	1,230,014	1,363,121	2,593,135
65 - 69	104,855	126,364	231,219	595,252	696,079	1,291,331	700,107	822,443	1,522,550
70 - 74	68,158	91,676	159,834	463,159	540,446	1,003,605	531,317	632,122	1,163,439
75+	69,329	91,155	160,484	428,743	473,597	902,340	498,072	564,752	1,062,824
Not stated	5,713	4,838	10,551	23,618	10,302	33,920	29,331	15,140	44,471
Total	11,590,477	11,739,387	23,329,864	52,815,993	54,095,335	106,911,328	64,406,470	65,834,722	130,241,192

Source: 1976 Intercensal Population Survey, Number 2, Table 01 (rural/total figures adjusted for geographical coverage, see Appendix p. 2).

Appendix Table A-4

INDONESIA: LABOR FORCE STATISTICS
(in thousands)

	Sept. 1961			Sept. 1971			Sept. 1971 ^{1/1}	March 1976			Oct. 1976 ^{1/2}		
	Male	Female	Total	Male	Female	Total	Total	Male	Female	Total	Male	Female	Total
Urban													
Total population	7,183	7,176	14,358	10,383	10,382	20,765		11,590	11,739	23,330	11,777	11,925	23,702
Population aged 10+	4,971	5,010	9,981	7,246	7,372	14,617		8,260	8,538	16,798	8,392	8,672	17,064
Population aged 15+	4,271	4,326	8,597	5,955	6,093	12,048		6,774	7,033	13,806			
Employment	3,248	1,050	4,298	4,217	1,580	5,796	6,256	5,093	2,125	7,218	4,937	2,063	7,000
Unemployment	260	141	401	220	75	295	318	290	134	424	364	111	475
Labor Force	3,509	1,191	4,699	4,436	1,655	6,091	6,574	5,383	2,258	7,642	5,301	2,174	7,475
Rural													
Total population	40,656	42,004	82,660	48,275	50,192	98,468		52,816	54,095	106,911	53,401	54,694	108,095
Population aged 10+	26,602	27,831	54,433	32,055	34,275	66,330		36,587	38,391	74,978	36,992	38,815	75,807
Population aged 15+	22,953	24,627	47,580	25,971	28,608	54,579		29,701	31,890	61,592			
Employment	20,733	7,920	28,653	22,141	11,537	33,678	36,888	26,819	19,272	48,091	27,702	15,140	42,842
Unemployment	951	530	1,481	432	168	600	657	359	289	648	533	164	697
Labor force	21,684	8,450	30,134	22,573	11,705	34,278	37,545	29,178	19,561	48,739	28,235	15,304	43,539
Total													
Total population	47,839	49,180	97,019	58,658	60,575	119,233		64,406	65,835	130,241	65,178	66,619	131,797
Population aged 10+	31,573	32,841	64,414	39,300	41,647	80,947		44,846	46,930	91,776	45,383	47,487	92,870
Population aged 15+	27,224	28,953	56,177	31,926	34,701	66,627		36,475	38,923	75,398			
Employment	23,981	8,970	32,951	26,358	13,117	39,474	43,144	33,912	21,397	55,309	32,639	17,203	49,842
Unemployment	1,211	671	1,882	652	243	895	975	649	423	1,072	898	274	1,172
Labor force	25,193	9,641	34,834	27,009	13,360	40,369	44,119	34,561	21,820	56,381	33,537	17,477	51,014

^{1/1} Lower labor force estimates are derived directly from the 1971 Population Census. Higher labor force figures have been estimated by applying labor force participation rates obtained from a linear interpolation of those observed in Sept. 1961 (census) and Sept.-Dec. 1976 (SAKERNAS), see Appendix p. 3.

^{1/2} Estimated by projecting March 1976 population and applying labor force and employment ratios from the September-December 1976 labor force survey. See Appendix P. 3.

Sources: 1961 Population Census, SPII, Tables 2.2, 2.3, 2.4, 2.5, 4.2, 4.3, 4.4, 4.5.
1971 Population Census, Series C, Tables 2, 2.1, 6, 6.1.
1976 Intercensal population survey, No.2, Tables 1 and 24 (data for Java/Outside Java provided by BPS).
October 1976 estimated. See Appendix p. 3.
(Rural/total figures for Indonesia adjusted for geographical coverage, see Appendix p. 2; urban figures remain unchanged.)

Appendix Table A-5

INDONESIA: LABOR FORCE OF JAVA, OUTSIDE JAVA
(in thousands)

	Sept. 1961			Sept. 1971			Sept. 1971 / ¹	March 1976			Oct. 1976 ²		
	Male	Female	Total	Male	Female	Total	Total	Male	Female	Total	Male	Female	Total
JAVA													
Urban													
Total Population	4,863	4,944	9,807	6,764	6,964	13,728		7,343	7,549	14,892	7,424	7,631	15,055
Population aged 10+	3,399	3,503	6,902	4,749	5,031	9,780		5,284	5,560	10,844	5,342	5,621	10,963
Population aged 15+	2,941	3,055	5,996	3,921	4,194	8,115							
Employment	2,251	847	3,098	2,781	1,202	3,983	4,246	3,220	1,455	4,675	3,115	1,440	4,555
Unemployment	174	107	282	153	51	204	217			277	223	62	285
Labor Force	2,425	955	3,380	2,934	1,253	4,187	4,463			4,952	3,338	1,502	4,840
Rural													
Total Population	25,938	27,248	53,186	30,407	31,967	62,375		33,038	34,172	67,211	33,371	34,515	67,886
Population aged 10+	17,093	18,270	35,363	20,418	22,116	42,534		23,242	24,587	47,829	23,475	24,834	48,309
Population aged 15+	14,520	16,314	31,134	16,582	18,540	35,122							
Employment	13,324	5,033	18,358	14,229	7,546	21,775	23,924	18,531	13,096	31,627	17,975	10,023	27,998
Unemployment	652	337	989	278	122	400	439			368	295	96	391
Labor Force	13,976	5,371	19,347	14,507	7,668	22,175	24,363			31,996	18,260	10,119	28,379
Total													
Total Population	30,801	32,192	62,993	37,172	38,931	76,102		40,381	41,722	82,103	40,793	42,148	82,941
Population aged 10+	20,491	21,773	42,264	25,167	27,147	52,314		28,526	30,147	58,673	28,817	30,455	59,272
Population aged 15+	17,461	19,370	37,130	20,503	22,734	43,237							
Employment	15,575	5,881	21,456	17,010	8,747	25,757	28,170	21,751	14,551	36,302	21,090	11,462	32,552
Unemployment	826	445	1,271	431	174	605	656	393	253	646	508	159	667
Labor Force	16,401	6,325	22,727	17,441	8,921	26,362	28,826	22,144	14,804	36,949	21,598	11,621	33,219
OUTSIDE JAVA													
Urban													
Total Population	2,320	2,232	4,551	3,619	3,418	7,037		4,247	4,190	8,438	4,353	4,293	8,646
Population aged 10+	1,572	1,507	3,079	2,497	2,341	4,837		2,976	2,978	5,954	3,049	3,052	6,101
Population aged 15+	1,330	1,271	2,601	2,034	1,899	3,933							
Employment	777	203	1,200	1,436	378	1,813	2,010	1,874	669	2,543	1,822	623	2,445
Unemployment	56	34	119	67	24	91	101			147	141	45	189
Labor Force	1,034	236	1,319	1,502	402	1,904	2,111			2,690	1,963	671	2,634
Rural													
Total Population	14,718	14,756	29,474	17,868	18,225	36,093		19,778	19,923	39,700	20,031	20,179	40,210
Population aged 10+	9,503	9,561	19,070	11,637	12,159	23,796		13,345	13,804	27,149	13,517	13,931	27,448
Population aged 15+	8,133	8,313	16,446	9,389	10,068	19,457							
Employment	7,409	2,887	10,295	7,912	3,991	11,903	12,964	10,288	6,176	16,464	9,727	5,117	14,844
Unemployment	239	193	432	154	46	200	218			230	249	67	310
Labor Force	7,708	3,079	10,787	8,066	4,037	12,103	13,182			16,743	9,976	5,184	15,160
Total													
Total Population	17,038	16,948	34,026	21,486	21,644	43,130		24,025	24,113	48,138	24,384	24,472	48,856
Population aged 10+	11,032	11,068	22,150	14,133	14,500	28,633		16,320	16,783	33,103	16,566	17,033	33,599
Population aged 15+	9,463	9,583	19,047	11,423	11,967	23,390							
Employment	8,406	3,089	11,495	9,348	4,370	13,717	14,974	12,162	6,845	19,007	11,549	5,740	17,289
Unemployment	375	226	611	221	69	290	319			426	390	116	506
Labor Force	8,792	3,316	12,107	9,568	4,439	14,007	15,293	12,417	7,016	19,432	11,939	5,856	17,795

¹ Lower labor force estimates are derived directly from the 1971 Population Census. Higher labor force figures have been estimated by applying labor force participation rates obtained from a linear interpolation of those observed in Sept. 1961 (census) and Sept.-Dec. 1976 (SAKERNAS), see Appendix p. 3.

² Estimated by projecting March 1976 population and applying labor force and employment ratios from the September-December 1976 labor force survey. See Appendix p. 3.

Sources: 1961 Population Census, SPII, Tables 2.2, 2.3, 2.4, 2.5, 4.2, 4.3, 4.4, 4.5.

1971 Population Census Series C, Tables 2, 2.1, 6, 6.1.

1976 intercensal population survey No.2, Tables 1 and 24 (data for Java/Outside Java provided by BPS).

October 1976 estimated. See Appendix p. 3.

(Rural/total figures for Indonesia adjusted for geographical coverage, see Appendix p. 2; urban figures remain unchanged.)

Appendix Table A-6

INDONESIA: LABOR FORCE PARTICIPATION RATES BY AGE AND SEX, SEPTEMBER 1961
(Percent)

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
<u>Indonesia</u>									
10 - 14	7.61	6.76	7.19	25.54	17.50	21.78	22.65	15.61	19.33
15 - 19	45.84	24.13	35.18	71.61	32.04	51.62	66.71	30.60	48.56
20 - 24	79.41	25.25	52.02	89.18	27.34	54.31	87.17	27.40	53.88
25 - 44	94.39	27.00	60.47	95.64	29.99	61.64	95.45	29.56	61.47
45 - 54	93.33	33.15	63.60	95.96	40.73	68.64	95.63	39.77	68.00
55 - 64	74.85	26.91	50.50	91.71	41.00	66.78	89.60	39.13	64.68
65+	53.24	16.81	32.69	75.34	29.62	52.23	72.79	27.80	49.72
Total*	70.58	23.77	47.08	81.51	30.36	55.36	79.79	29.36	54.08
<u>Java</u>									
10 - 14	6.82	7.79	7.30	25.36	17.15	21.56	22.25	15.40	19.05
15 - 19	47.10	27.37	37.30	70.12	29.83	49.98	65.50	29.34	47.45
20 - 24	78.77	28.37	53.19	87.11	24.62	50.91	85.24	25.29	51.36
25 - 44	94.76	31.15	62.41	95.55	28.45	60.33	95.42	28.85	60.65
45 - 54	93.20	37.45	64.94	96.14	41.02	68.37	95.75	40.55	67.92
55 - 64	73.19	29.43	50.45	92.62	43.03	67.69	90.07	41.14	65.36
65+	51.44	17.83	31.90	78.81	32.12	54.65	75.31	29.84	51.36
Total*	71.35	27.26	48.97	81.77	29.40	54.71	80.04	29.05	53.77
<u>Outside Java</u>									
10 - 14	9.09	4.51	6.98	25.83	18.05	22.13	23.32	15.94	19.79
15 - 19	43.40	17.46	30.94	74.07	35.44	54.22	68.73	32.64	50.38
20 - 24	80.85	18.08	49.35	92.52	33.70	60.17	90.51	31.41	58.46
25 - 44	93.53	16.61	55.77	95.83	33.24	64.28	95.52	31.10	63.16
45 - 54	93.63	21.86	60.41	95.61	40.10	69.20	95.37	38.02	68.18
55 - 64	78.54	20.33	50.60	89.97	36.57	64.94	89.67	34.64	63.27
65+	56.70	14.35	34.42	75.44	25.64	48.62	69.11	24.38	47.14
Total*	68.90	15.65	42.85	81.05	32.21	56.56	79.33	29.96	54.66

*Totals include unknowns.

Source: 1961 Population Census Series SPII, Tables 2.1-2.5, and 4.1-4.5.

Appendix Table A-7

INDONESIA: LABOR FORCE PARTICIPATION RATE BY AGE AND SEX, SEPTEMBER 1971
(Percent)

Age	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
<u>Indonesia</u>									
10 - 14	8.55	7.71	8.13	20.35	15.94	18.23	18.29	14.43	16.42
15 - 19	32.92	17.44	25.23	53.35	31.59	42.32	48.97	28.65	38.72
20 - 24	67.02	23.57	44.42	79.47	34.03	53.90	76.50	31.85	51.79
25 - 44	94.77	28.99	60.41	92.27	40.02	64.57	92.31	38.21	63.86
45 - 54	86.46	31.99	59.84	90.77	45.48	68.32	90.06	43.33	66.95
55 - 64	65.49	27.11	45.78	84.02	37.92	60.19	81.11	36.25	57.95
65+	40.95	14.50	26.53	63.91	24.40	43.57	60.55	22.82	40.78
Total	61.23	22.45	41.67	70.42	34.15	51.68	68.73	32.08	49.67
<u>Java</u>									
10 - 14	7.78	7.95	7.87	21.30	16.15	18.82	18.90	14.60	16.81
15 - 19	33.03	20.30	26.58	53.43	31.48	42.51	48.95	28.98	38.90
20 - 24	68.00	25.82	45.70	77.19	33.09	52.09	74.86	31.46	50.58
25 - 44	93.37	31.75	61.52	92.35	40.36	64.56	92.53	38.90	64.03
45 - 54	86.10	35.13	60.64	91.71	46.63	69.18	90.77	44.71	67.75
55 - 64	62.74	29.36	45.11	84.52	38.89	60.46	80.95	37.32	57.94
65+	39.60	16.15	26.50	65.74	26.06	44.66	61.53	24.31	41.59
Total *	61.78	24.90	42.81	71.05	34.67	52.14	69.30	32.86	50.39
<u>Outside Java</u>									
10 - 14	9.92	7.26	8.62	18.74	15.59	17.22	17.23	14.14	15.74
15 - 19	32.71	11.68	22.63	53.21	31.76	42.17	49.01	28.11	38.41
20 - 24	65.18	18.88	41.86	82.96	35.58	56.76	79.14	32.52	53.82
25 - 44	97.49	22.82	58.12	92.13	39.34	64.59	91.90	36.82	63.54
45 - 54	87.20	26.35	58.04	88.96	43.16	66.62	88.69	40.47	65.34
55 - 64	71.28	21.34	47.36	83.12	35.95	59.68	81.43	33.98	57.97
65+	43.65	10.56	26.60	61.21	21.65	41.33	59.03	20.21	39.46
Total*	60.18	17.17	39.36	69.32	33.20	50.86	67.70	30.61	48.92

*Totals include unknowns.

Source: 1971 Population Census, Series C, Tables 2, 2.1, 6 and 6.1.

Appendix Table A-8

INDONESIA: LABOR FORCE PARTICIPATION RATE BY AGE AND SEX, MARCH AND SEPT-DEC 1976
(Percent)

Age in Years	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
<u>March 1976</u>									
10 - 14	7.86	7.49	7.67	30.06	23.97	27.10	26.12	20.87	23.55
15 - 19	40.26	24.37	32.04	73.36	51.09	61.97	66.43	45.42	55.68
20 - 24	77.84	30.24	54.10	91.43	53.47	71.59	88.29	48.49	67.70
25 - 44	96.44	33.37	64.47	98.61	59.73	78.19	98.22	55.23	75.78
45 - 54	92.35	38.39	65.19	97.87	66.24	82.17	96.99	61.70	79.44
55 - 64	72.89	30.47	51.40	93.43	54.76	73.59	90.31	51.16	70.26
65+	47.23	15.20	29.27	73.24	33.85	52.17	69.60	30.99	48.80
Total*	65.17	26.45	45.49	79.75	50.95	65.01	77.07	46.50	61.43
<u>September-December 1976</u>									
10 - 14	4.79	4.93	4.86	19.50	12.45	16.18	16.72	10.89	13.93
15 - 19	34.62	22.59	28.46	65.23	37.59	51.63	58.79	34.24	46.60
20 - 24	75.19	28.76	51.11	91.01	40.02	62.87	87.14	37.51	60.14
25 - 44	96.56	32.26	63.42	99.02	48.61	71.75	98.56	45.75	70.43
45 - 54	89.67	36.92	64.00	96.55	53.33	76.03	95.42	50.53	74.00
55 - 64	67.88	29.37	48.78	88.58	42.33	65.39	85.26	40.26	62.71
65+	41.15	12.23	25.84	64.36	21.47	41.79	60.89	20.04	39.37
Total*	63.17	25.06	43.77	76.30	39.53	57.52	73.79	36.78	54.89

* Total includes unknowns.

Sources: March 1976 - Intercensal Population Survey 1976, No. 2, Tables 1 and 24.
Sept-Dec 1976 - Labor Force Survey Sept-Dec 1976, Tables 1.1-1.9.

Appendix Table A-9

INDONESIA: EMPLOYED PERSONS 10 YEARS PLUS BY INDUSTRY, SEPT. 1961

	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture, Forestry and Fishing	409,751	92,593	502,344	17,106,927	6,103,479	23,210,406	17,516,678	6,196,072	23,712,750
Mining and Quarrying	20,018	1,203	21,221	57,427	9,311	66,738	77,445	10,514	87,959
Manufacturing	500,525	183,716	684,241	663,857	518,063	1,181,920	1,164,382	701,779	1,866,161
Construction	246,907	7,327	254,234	316,356	14,250	330,606	563,263	21,577	584,840
Electricity, Water, Gas	33,793	1,862	35,655	14,433	770	15,203	48,226	2,632	50,858
Trade, Banking and Insurance	679,541	200,048	879,589	838,122	487,492	1,325,614	1,517,663	687,540	2,205,203
Transport, Storage and Communication	405,054	12,680	417,734	264,061	12,002	276,063	669,115	24,682	693,797
Services	893,108	528,947	1,422,055	1,155,206	532,268	1,687,474	2,048,314	1,061,215	3,109,529
Others and Unknowns	59,542	21,245	80,787	316,636	242,739	559,375	376,178	263,984	640,162
Total	3,248,239	1,049,621	4,297,860	20,733,025	7,920,374	28,653,399	23,981,264	8,969,995	32,951,259

Source: 1961 Population Census, Tables 8, 8.1, 8.2 (rural/total figures adjusted for geographical coverage, see Appendix p. 2).

Appendix Table A-10

INDONESIA: EMPLOYED PERSONS 10 YEARS PLUS BY INDUSTRY, SEPT. 1971

	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture, Hunting, Forestry and Fishing	473,944	125,900	599,844	16,531,843	7,831,804	24,363,647	17,005,787	7,957,704	24,963,491
Mining and Quarrying	41,209	2,916	44,125	43,459	2,997	46,456	84,668	5,913	90,581
Manufacturing	461,202	200,271	661,473	1,062,567	1,225,574	2,288,141	1,523,769	1,425,845	2,949,614
Electricity, Gas and Water	25,493	1,216	26,709	10,863	505	11,368	36,356	1,721	38,077
Construction	284,205	5,050	289,255	446,637	4,660	451,297	730,842	9,710	740,552
Financing, Insurance, Real Estate and Business Services	70,979	14,644	85,623	8,341	1,498	9,839	79,320	16,142	95,462
Trade, Restaurants and Hotels	934,409	518,715	1,453,124	1,407,399	1,273,853	2,681,252	2,341,808	1,792,568	4,134,376
Transport, Storage and Communication	501,986	12,001	513,987	399,527	5,647	405,174	901,513	17,648	919,161
Community, Social and Personal Services	1,287,906	568,204	1,856,110	1,587,429	496,132	2,083,561	2,875,335	1,064,336	3,939,671
Activities not Adequately Defined	135,176	131,050	266,226	642,906	694,375	1,337,281	778,082	825,425	1,603,507
Total	4,216,509	1,579,967	5,796,476	22,140,971	11,537,045	33,678,016	26,357,480	13,117,012	39,474,492

Source: 1971 Population Census, Series C, Table 7 (rural/total figures adjusted for geographical coverage, see Appendix p. 2).

Appendix Table A-11

JAVA: EMPLOYED PERSONS 10 YEARS PLUS BY INDUSTRY, SEPTEMBER 1971

	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture, hunting, forestry and fishing	185,195	56,063	241,258	10,139,313	4,725,740	14,865,058	10,324,513	4,781,803	15,106,316
Mining and quarrying	6,341	518	6,859	24,745	0	24,745	31,086	518	31,604
Manufacturing	360,741	164,646	505,387	860,756	919,707	1,780,463	1,201,497	1,084,353	2,285,850
Electricity, gas and water	18,230	1,216	19,446	6,843	0	6,843	25,073	1,216	26,289
Construction	204,067	4,155	208,222	299,625	3,542	303,167	503,692	7,697	511,389
Trade, restaurants and hotels	633,277	409,825	1,043,102	1,122,618	1,111,175	2,233,793	1,755,895	1,521,000	3,276,895
Transport, storage and communication	354,946	9,435	364,381	269,933	4,895	274,828	624,879	14,330	639,209
Financing, insurance, real estate and business services	54,943	11,160	66,103	4,648	1,486	6,134	59,591	12,646	72,237
Community, social and personal services	898,479	462,957	1,361,436	1,086,057	364,588	1,450,645	1,984,536	827,545	2,812,081
Activities not adequately defined	84,701	81,632	166,333	414,549	414,669	829,218	499,250	496,301	995,551
Total	2,780,920	1,201,607	3,982,527	14,229,092	7,545,802	21,774,894	17,010,012	8,747,409	25,757,421

Source: 1971 Population Census, Serie C, Table 7.1.

Appendix Table A-12

INDONESIA, JAVA, OUTSIDE JAVA: AN ALTERNATIVE ESTIMATE OF EMPLOYED PERSONS 10 YEARS PLUS BY
INDUSTRY ^{/1} SEPTEMBER 1971
(000's)

	Java			Outside Java			Indonesia		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Agriculture, forestry, fishing	268	16,979	17,247	420	10,807	11,227	688	27,786	28,474
Mining and Quarrying	8	29	37	44	25	69	52	54	106
Manufacturing	562	2,034	2,596	183	578	761	745	2,612	3,357
Electricity, gas and water	22	7	29	8	5	13	30	12	42
Construction	232	347	579	95	169	264	327	516	843
Financing, Insurance, Real Estate & Business Services	74	7	81	23	4	27	97	11	108
Trade, restaurants and hotels	1,160	2,550	3,710	481	509	990	1,641	3,059	4,700
Transport, storage and communication	405	313	718	176	148	324	581	461	1,042
Community, social and personal services	1,515	1,658	3,173	580	719	1,299	2,095	2,377	4,472
Total*	4,246	23,924	28,170	2,010	12,964	14,974	6,256	36,888	43,144

^{/1} Estimated on the basis of applying 1971 census employment ratios on labor force figures obtained from a linear interpolation of those observed in September 1961 (census) and September-December 1976 (SAKERNAS). Sectoral employment is obtained by applying the percent distribution from the 1971 census to total employment separately for urban-rural, Java - outside Java. See Appendix p. 3).

* Employed persons whose sector of employment is unknown have been allocated in proportion to the distribution of other employed workers.

Sources: Appendix Tables A-5, A-10, A-11.

Appendix Table A-13

INDONESIA: EMPLOYED PERSONS 10 YEARS PLUS BY INDUSTRY, MARCH 1976

	Urban			Rural			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Agriculture	639,134	275,685	914,819	21,552,730	14,176,475	35,729,205	22,191,864	14,452,160	36,644,024
Mining	19,616	1,926	21,542	21,565	1,729	23,294	41,181	3,655	44,836
Manufacturing	451,988	232,967	684,955	1,488,501	1,502,663	2,991,164	1,940,489	1,735,630	3,676,119
Electricity	23,202	758	23,960	9,828	819	10,647	33,030	1,577	34,607
Construction	449,634	9,597	459,231	642,299	22,163	664,462	1,091,933	31,760	1,123,693
Financing	52,852	9,565	62,417	11,511	819	12,330	64,363	10,384	74,747
Trade	1,137,550	748,484	1,886,034	2,191,592	2,351,823	4,543,415	3,329,142	3,100,307	6,429,449
Transport, Storage	556,360	11,219	567,579	559,055	7,193	566,248	1,115,415	8,412	1,133,827
Services	1,619,556	767,436	2,386,992	1,991,871	889,922	2,881,793	3,611,427	1,657,358	5,268,785
Others	143,133	67,020	210,153	350,601	318,726	669,327	493,734	385,746	879,480
Total	5,093,025	2,124,657	7,217,682	28,819,553	19,272,332	48,091,885	33,912,578	21,396,989	55,309,567

Source: 1976 Intercensal Population Survey, Number 2, Table 9 (rural/total figures adjusted for geographical coverage, see Appendix P- 2).

Appendix Table A-14

INDONESIA, JAVA, OUTSIDE JAVA: ESTIMATED EMPLOYMENT OF PERSONS 10 YEARS PLUS
BY INDUSTRY /1 OCTOBER 1976
(000's)

	Java			Outside Java			Indonesia		
	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total
Agriculture, forestry, fishing	200	18,815	19,015	549	11,250	11,799	749	30,065	30,814
Mining and Quarrying	9	73	82	14	24	38	23	97	120
Manufacturing	681	2,341	3,022	207	950	1,157	888	3,291	4,179
Electricity, gas and water	15	6	21	6	1	7	21	7	28
Construction	242	400	642	87	120	207	329	520	849
Financing, Insurance, Real Estate & Business Services	51	17	68	14	15	29	65	32	97
Trade, restaurants and hotels	1,362	3,797	5,159	685	1,312	1,997	2,047	5,109	7,156
Transport, storage and communication	421	510	931	183	223	406	604	733	1,337
Community, social and personal services	1,574	2,038	3,612	700	949	1,649	2,274	2,987	5,261
Total*	4,555	27,997	32,552	2,445	14,844	17,289	7,000	42,841	49,841

/1 Estimated by projecting March 1976 population and applying labor force and employment ratios from the September-December 1976 labor force survey. Sectoral employment is obtained by applying the percent distribution from the labor force survey to total employment for urban-rural, Java-Outside Java, see Appendix p. 3.

* Employed persons whose sector of employment is unknown have been allocated in proportion to the distribution of other employed workers.

Source: Appendix Tables A-4, A-5; Labor Force Survey, September-December 1976, No2. Tables 14.1-14.9.

Appendix Table A-15

CUT-OFF LEVEL OF CONSUMPTION EXPENDITURE PER CAPITA FOR 1970 IN CURRENT PRICES

	<u>Java</u>		<u>Outside Java</u>	
	<u>Urban</u>	<u>Rural</u>	<u>Urban</u>	<u>Rural</u>
<u>1976 Cut-off</u>				
<u>Rp 1,500</u>				
9 Essential Commodities	550	528	601	615
Cost of Living	550		603	
Food	492	493	566	
<u>Rp 2,000</u>				
9 Essential Commodities	733	704	801	820
Cost of Living	733		804	
Food	656	657	755	
<u>Rp 2,500</u>				
9 Essential Commodities	917	881	1,002	1,025
Cost of Living	916		1,005	
Food	820	821	944	
<u>Rp 3,000</u>				
9 Essential Commodities	1,100	1,057	1,202	1,230
Cost of Living	1,099		1,206	
Food	984	986	1,133	

Source: Calculated using price deflators given in Table 4.1.

Appendix Table A-16DISTRIBUTION OF THE POPULATION BY PER CAPITA MONTHLY CONSUMPTION
EXPENDITURE CLASS, INDONESIA, JANUARY-APRIL 1970

(%)

Per Capita Monthly Consumption Expenditure (Rp.)	Java		Outside Java ^{/a}	
	Urban	Rural	Urban	Rural
up to 300	.27	2.64	.16	.87
301 - 500	3.46	12.11	1.33	4.67
501 - 750	11.65	24.74	4.94	9.47
751 - 1,000	14.23	21.51	8.80	12.77
1,001 - 1,250	14.09	14.04	11.10	14.09
1,251 - 1,500	12.20	8.85	12.64	12.82
1,501 - 2,000	17.92	9.12	22.48	18.01
2,001 - 2,500	8.98	3.71	12.20	11.19
2,501 - 3,000	6.63	1.50	10.27	5.46
3,001 or more	10.57	1.77	16.09	10.65

Source: Survey Sosial Ekonomi Nasional, Tahap Ke-Empat (October 1969-April 1970), Pengeluaran Untuk Konsumsi Penduduk, Biro Pusat Statistik, Jakarta, Table 1.

^{/a} Excluding Maluku and Irian Barat.

Appendix Table A-17DISTRIBUTION OF THE POPULATION BY PER CAPITA MONTHLY CONSUMPTION
EXPENDITURE CLASS, INDONESIA, JANUARY-APRIL 1976

(%)

Per Capita Monthly Consumption Expenditure Class (Rp.)	Java		Outside Java ^{/a}	
	Urban	Rural	Urban	Rural
up to 1,000	.52	1.01	.11	1.39
1,000 - 1,999	4.49	20.16	3.42	8.76
2,000 - 2,999	12.46	31.88	8.15	18.24
3,000 - 3,999	17.01	20.31	14.98	21.42
4,000 - 4,999	14.39	10.98	15.99	15.93
5,000 - 5,999	10.98	6.76	14.18	9.99
6,000 - 7,999	13.56	5.16	17.52	12.81
8,000 - 9,999	9.10	1.99	10.45	5.75
10,000 - 14,999	9.77	1.25	9.92	4.75
15,000 - 19,999	3.67	.26	3.02	.65
20,000 - 29,999	2.72	.19	1.56	.26
30,000 or more	1.33	.06	.68	.06

Source: Survey Sosial Ekonomi Nasional, Tahap Ke-Lima (Januari-April 1976)
Pengeluaran Untuk Konsumsi Penduduk, unpublished tabulations, Biro
Pusat Statistik, Jakarta.

^{/a} Excluding Maluku and Irian Barat.

Appendix Table A-18

PROPORTION OF POPULATION BELOW DIFFERENT MONTHLY CONSUMPTION EXPENDITURE
PER CAPITA LEVELS (IN RUPIAH, JAKARTA PRICES), URBAN AREAS, INDONESIA, 1976

(%)

Islands/Provinces	1,500	2,000	2,500	3,000
I. <u>Sumatra</u>	<u>1.50</u>	<u>3.22</u>	<u>7.12</u>	<u>13.48</u>
Aceh	0.0	.13	2.58	5.23
North Sumatra	2.64	4.90	10.13	16.24
West Sumatra	0.0	1.61	5.26	12.55
Riau	6.13*	8.45*	8.45	17.79
Jambi	1.45	3.45	7.54	12.52
South Sumatra	0.0	.55	1.45	6.76
Bengkulu	.23	1.48	5.49	8.59
Lampung	0.0	3.74	16.32*	29.12*
II. <u>Java</u>	<u>3.30*</u>	<u>6.76*</u>	<u>13.42*</u>	<u>20.72*</u>
Jakarta Raya	.44	.88	4.18	7.48
West Java	3.18*	8.03*	15.73*	24.77*
Central Java	5.86*	11.95*	22.60*	33.40*
Jogjakarta	2.07	4.17	12.72*	21.46*
East Java	5.91*	11.01*	18.81*	28.01*
III. <u>Bali and Nusa Tenggara</u>	<u>3.38*</u>	<u>8.47*</u>	<u>17.06*</u>	<u>27.36*</u>
Bali	.40	3.57	8.95	14.60
West Nusa Tenggara	8.02*	17.61*	31.65*	47.84*
East Nusa Tenggara	1.94	4.42	10.96	20.52*
IV. <u>Kalimantan</u>	<u>2.42</u>	<u>5.03</u>	<u>8.55</u>	<u>13.90</u>
West Kalimantan	6.55*	12.83*	20.27*	28.97*
Central Kalimantan	0.0	1.83	6.44	18.07
South Kalimantan	0.0	.48	1.90	6.10
East Kalimantan	0.0	0.0	0.0	.10
V. <u>Sulawesi</u>	<u>3.04*</u>	<u>6.87*</u>	<u>11.76</u>	<u>15.66</u>
North Sulawesi	5.18*	13.41*	23.09*	27.63*
Central Sulawesi	0.0	.89	4.64	7.97
South Sulawesi	2.70	5.40	8.80	12.21
Southeast Sulawesi	0.0	1.36	5.72	14.76
VI. <u>Maluku and Irian Barat</u>	<u>5.35*</u>	<u>13.00*</u>	<u>21.67*</u>	<u>31.19*</u>
Maluku	5.35*	13.00*	21.67*	31.19*
Irian Barat	n.a.	n.a.	n.a.	n.a.
<u>Indonesia</u>	2.89	6.05	11.90	18.73

n.a. - not available

* percentage is above figure for urban Indonesia.

Source: Calculated similarly to Table 4.4 using the 9 Essential Commodities price index and computer print-out for SUSENAS 1976 (BPS).

Appendix Table A-19

PROPORTION OF POPULATION BELOW DIFFERENT MONTHLY CONSUMPTION EXPENDITURE
PER CAPITA LEVELS (IN RUPIAH, JAKARTA PRICES), RURAL AREAS, INDONESIA, 1976

(%)

Islands/Provinces	1,500	2,000	2,500	3,000
I. <u>Sumatra</u>	<u>5.02</u>	<u>9.74</u>	<u>18.54</u>	<u>28.53</u>
Aceh	1.53	3.23	8.71	14.46
North Sumatra	1.81	3.72	12.47	21.81
West Sumatra	3.74	9.45	18.52	32.54
Riau	2.70	8.13	16.56	33.15
Jambi	0.0	1.42	7.00	13.41
South Sumatra	8.90	15.75	22.88	29.25
Bengkulu	1.86	5.62	14.93	25.06
Lampung	13.44*	23.07*	36.15	47.67
II. <u>Java</u>	<u>13.52*</u>	<u>26.69*</u>	<u>44.01*</u>	<u>58.74*</u>
Jakarta Raya	-	-	-	-
West Java	5.14	13.24	26.59	40.67
Central Java	15.56*	30.90*	51.80*	67.84*
Jogjakarta	14.37*	27.73*	44.05*	60.47*
East Java	19.00*	34.68*	52.36*	66.34*
III. <u>Bali and Nusa Tenggara</u>	<u>11.80*</u>	<u>22.82*</u>	<u>35.45</u>	<u>49.53</u>
Bali	3.54	11.46	23.36	40.92
West Nusa Tenggara	9.60	19.10	30.53	42.90
East Nusa Tenggara	21.42*	36.72*	51.16*	63.73*
IV. <u>Kalimantan</u>	<u>2.06</u>	<u>4.98</u>	<u>10.18</u>	<u>17.25</u>
West Kalimantan	3.32	7.02	12.54	19.53
Central Kalimantan	3.66	7.75	13.41	21.22
South Kalimantan	.40	2.70	8.78	17.50
East Kalimantan	.40	.86	1.65	3.00
V. <u>Sulawesi</u>	<u>10.76</u>	<u>19.78</u>	<u>32.56</u>	<u>44.95</u>
North Sulawesi	9.27	20.76	34.49	47.35
Central Sulawesi	11.48*	21.13	34.75	46.80
South Sulawesi	10.20	18.03	30.23	42.42
Southeast Sulawesi	16.47*	26.99*	40.25*	53.34*
VI. <u>Maluku and Irian Barat</u>	<u>17.25*</u>	<u>30.67*</u>	<u>42.05*</u>	<u>61.94*</u>
Maluku	17.25*	30.67*	42.05*	61.94*
Irian Barat	n.a.	n.a.	n.a.	n.a.
<u>Indonesia</u>	<u>11.31</u>	<u>22.14</u>	<u>36.73</u>	<u>50.19</u>

n.a. - not available

* percentage is above figure for rural Indonesia.

Source: Calculated similarly to Table 4.4 using the 9 Essential Commodities price index and computer print-outs for SUSENAS 1976 (BPS).

Appendix Table A-20

DISTRIBUTION OF POPULATION BELOW DIFFERENT MONTHLY CONSUMPTION EXPENDITURE
PER CAPITA LEVELS (IN RUPIAH, JAKARTA PRICES), URBAN AREAS, INDONESIA, 1976

(%)

<u>Islands/Provinces</u>	<u>1,500</u>	<u>2,000</u>	<u>2,500</u>	<u>3,000</u>
I. <u>Sumatra</u>	<u>10.14</u>	<u>17.36</u>	<u>11.69</u>	<u>14.06</u>
Aceh	0.0	.03	.26	.34
North Sumatra	6.69	5.93	6.22	6.34
West Sumatra	0.0	.61	1.02	1.54
Riau	2.71	1.79	.91	1.21
Jambi	.72	.82	.91	.96
South Sumatra	0.0	.41	.55	1.62
Bengkulu	.02	.07	.12	.12
Lampung	0.0	.77	1.70	1.93
II. <u>Java</u>	<u>72.58</u>	<u>70.95</u>	<u>71.61</u>	<u>70.24</u>
Jakarta Raya	3.48	3.32	8.03	9.13
West Java	13.43	16.18	16.10	16.10
Central Java	21.71	21.14	20.32	19.08
Jogjakarta	1.30	1.25	1.94	2.08
East Java	32.66	29.06	25.22	23.85
III. <u>Bali and Nusa Tenggara</u>	<u>2.95</u>	<u>3.55</u>	<u>3.62</u>	<u>3.69</u>
Bali	.13	.56	.71	.73
West Nusa Tenggara	2.32	2.44	2.22	2.14
East Nusa Tenggara	.50	.55	.69	.82
IV. <u>Kalimantan</u>	<u>5.38</u>	<u>5.34</u>	<u>4.61</u>	<u>4.77</u>
West Kalimantan	5.38	5.03	4.04	3.67
Central Kalimantan	0.0	.18	.32	.57
South Kalimantan	0.0	.13	.25	.52
East Kalimantan	0.0	0.0	0.0	.01
V. <u>Sulawesi</u>	<u>7.68</u>	<u>8.29</u>	<u>7.20</u>	<u>6.09</u>
North Sulawesi	2.99	3.70	3.23	2.46
Central Sulawesi	0.0	.05	.13	.14
South Sulawesi	4.69	4.47	3.70	3.26
Southeast Sulawesi	0.0	.07	.14	.23
VI. <u>Maluku and Irian Barat</u>	<u>1.28</u>	<u>1.48</u>	<u>1.26</u>	<u>1.15</u>
Maluku	1.28	1.48	1.26	1.15
Irian Barat	n.a.	n.a.	n.a.	n.a.
<u>Indonesia</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

n.a. - not available.

Source; Calculated from Table A-18 and population distribution by province
from computer print-outs for SUSENAS 1976 (BPS).

Appendix Table A-21

DISTRIBUTION OF POPULATION BELOW DIFFERENT MONTHLY CONSUMPTION EXPENDITURE
PER CAPITA LEVELS, (IN RUPIAH, JAKARTA PRICES) RURAL AREAS, INDONESIA, 1976

(%)

<u>Islands/Provinces</u>	<u>1,500</u>	<u>2,000</u>	<u>2,500</u>	<u>3,000</u>
I. <u>Sumatra</u>	<u>7.88</u>	<u>7.82</u>	<u>8.96</u>	<u>10.08</u>
Aceh	.25	.27	.43	.52
North Sumatra	.86	.91	1.83	2.34
West Sumatra	.76	.98	1.16	1.49
Riau	.34	.53	.65	.96
Jambi	0.0	.05	.14	.19
South Sumatra	2.08	1.88	1.65	1.54
Bengkulu	.08	.12	.19	.24
Lampung	3.51	3.08	2.91	2.80
II. <u>Java</u>	<u>75.39</u>	<u>76.01</u>	<u>75.55</u>	<u>73.78</u>
Jakarta Raya	-	-	-	-
West Java	8.78	11.55	13.99	15.66
Central Java	27.17	27.56	27.85	26.68
Jogjakarta	2.62	2.58	2.47	2.48
East Java	36.82	34.32	31.24	28.96
III. <u>Bali and Nusa Tenggara</u>	<u>6.43</u>	<u>6.34</u>	<u>5.94</u>	<u>6.07</u>
Bali	.61	1.01	1.24	1.58
West Nusa Tenggara	1.76	1.78	1.72	1.77
East Nusa Tenggara	4.06	3.55	2.98	2.72
IV. <u>Kalimantan</u>	<u>.75</u>	<u>.92</u>	<u>1.13</u>	<u>1.41</u>
West Kalimantan	.48	.51	.55	.63
Central Kalimantan	.20	.22	.23	.27
South Kalimantan	.05	.17	.33	.48
East Kalimantan	.02	.02	.02	.03
V. <u>Sulawesi</u>	<u>6.84</u>	<u>6.43</u>	<u>6.38</u>	<u>6.43</u>
North Sulawesi	1.16	1.33	1.33	1.33
Central Sulawesi	.89	.84	.83	.82
South Sulawesi	3.81	3.44	3.48	3.57
Southeast Sulawesi	.98	.82	.74	.71
VI. <u>Maluku and Irian Barat</u>	<u>2.72</u>	<u>2.47</u>	<u>2.04</u>	<u>2.20</u>
Maluku	2.72	2.47	2.04	2.20
Irian Barat	n.a.	n.a.	n.a.	n.a.
<u>Indonesia</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

n.a. - not available.

Source: Calculated from Table A-19 and population distribution by province
from computer print-outs for SUSENAS 1976 (BPS).

Appendix Table A-22

DISTRIBUTION OF POPULATION BY SOURCE OF INCOME AND AVERAGE MONTHLY
EXPENDITURE PER CAPITA, INDONESIA, 1976

(%)

Average Monthly Expenditure per Capita (Rp.)	Urban		Rural	
	Agriculture ^{/a}	Nonagriculture ^{/b}	Agriculture ^{/a}	Nonagriculture ^{/b}
0 - 999	1.29	.81	1.53	.92
1,000 - 1,999	18.40	13.23	29.03	25.32
2,000 - 2,999	31.34	24.19	36.58	35.23
3,000 - 3,999	22.05	24.44	20.31	22.16
4,000 - 4,999	7.99	10.29	6.13	7.36
5,000 - 7,499	15.34	17.22	5.13	6.94
7,500 - 9,999	2.04	4.89	.80	1.33
10,000 - 14,999	.82	3.29	.30	.54
15,000 - 29,999	.65	1.40	.16	.17
30,000 - 49,999	.09	.18	.03	.02
50,000 - 74,999	-	.06	-	.00
75,000 or more	-	.00	-	-
Total	100.00	100.00	100.00	100.00

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Tables 14 and 15.

/a Agriculture is primary source of household income.

/b Nonagriculture is primary source of household income.

POPULATION TRENDS AND PROSPECTS IN INDONESIA*

A. Population Characteristics

(a) Population size and distribution

The decennial censuses of 1961 and 1971 were, until recently, the main sources of demographic data for Indonesia and the regions comprising it. In 1976, the Central Bureau of Statistics conducted a three-phased Intercensal Population Survey and the data from this survey when fully analyzed should provide deep insights into recent population trends and population prospects in Indonesia. 1/ Additionally, the 1973 Fertility-Mortality Survey conducted by the Lembaga Demografi, University of Indonesia provides levels and trends in fertility and childhood mortality in Indonesia during the late 1960s and the early 1970s which serve as useful yardsticks for assessing recent changes in patterns of fertility and mortality rates. 2/

Indonesia is the fifth most populous country in the world. The population estimate as of February-March 1976 obtained from the Intercensal Population Survey was 130 million. With a total land area of 1.9 million km², the density of population at the time of the survey was 69 persons per km², rather more moderate and lower than that of Asia (78) or India (172). However, 63% of the Indonesians lived in Java, including Madura, which accounts for less than 7% of the land area and had a density of 610 persons per km² in 1976, almost twice that of the densely-populated countries in Northwest Europe, such as the Netherlands (326) or Belgium (318) and higher than in

* This annex was prepared by C. Chandrasakaran of the resident staff in Indonesia.

1/ Phase I involved a listing of 257,100 households selected by statistical sampling, with few items of information collected on all members of the household. This information allows for the computation of fertility estimates using the "own-children" method. Phase II obtained detailed data on demographic, economic and social characteristics of all members of a sub-sample of 60,733 households selected for Phase II. Information obtained during Phase II includes those on the economic condition of the household, economic activity of the members, movement and reasons for migration, health and marriage and fertility. Phase III was the Indonesian Fertility Survey conducted as part of the World Fertility Survey and included a number of questions on family planning.

2/ The Fertility Mortality Survey was a large one-round sample survey, covering the topics of marriage, marriage dissolution, fertility, mortality and knowledge, attitude and contraceptive practice (KAP) in Java, Sumatra, Sulawesi and Bali, which together contain 86% of Indonesia's total population. Jakarta, which constitutes a special region equivalent in status to a province, was not included in the sample (or in the above estimate of 86%).

Bangladesh (510). 1/ The 22 provinces of Indonesia, excluding Java and Madura, have a much lower density with large differences among them. Bali had a density closest to Java's in 1976, while Kalimantan and West Irian had only 10 and 2 persons per km², respectively (Table 1).

(b) Sex and age composition

Sex

Females were in excess of males, as the sex ratio according to the 1976 survey was 978 males per 1,000 females. The censuses of 1961 and 1971 gave a sex ratio of 973 and 972, respectively. The consistently lower proportion of males than females in Indonesia's population points to the existence of a life style which tends to reduce the life span of men compared to women.

Age

Indonesia's population is marked by a high proportion of persons in the younger age groups, indicative of a high level of child-bearing and a relatively low to moderate expectation of life at birth (Tables 2 and 3). In 1976, 42.1% were in the age-group 0-14 years, 55.1% in the age group 15-64 years and 2.7% in the age-group 65 years and over.

A decline in the percentage of persons aged 0-14 years from 44.0% to 42.1% is revealed by comparing the 1976 age distribution with that given by the 1971 census. This diminution is largely due to a lower percentage in the 0-4 age group and, as will be confirmed later, is due to a decline in fertility during the period 1971-76.

The dependency ratio, defined as the ratio of population under 15 and 65 and over to those aged 15 through 64, which gives a rough measure of the number of dependents to be supported by a person in the working age-group, declined from 0.87 in 1971 to 0.81 in 1976. The diminution resulted solely from a lowering of the percentage of population in the 0-14 age-group. Further improvements in the dependency ratio will have to depend on continued fertility decline.

A "hollow" in the age groups 10 to 14 and 15 to 19 both among males and females in the 1961 age distribution was attributed to reduced fertility and increased infant and childhood mortality during the 1940's when Indonesia suffered from the effects of Japanese occupation, the aftermath of World War II and the fight for independence. 2/ The 1971 census

1/ Figures for the Netherlands and Belgium refer to 1972. See United Nations, Demographic Yearbook 1972, New York, 1973.

2/ Widjojo Nitisastro (1970) Population Trends in Indonesia, Cornell University Press, Ithaca and London, pp. 115-123.

Table 1: POPULATION OF INDONESIA, 1961, 1971 AND 1976, AVERAGE
ANNUAL GROWTH RATE 1961-71 AND 1971-76, AND
POPULATION DENSITY BY REGION AND PROVINCE
(000 's)

Region	Census	Census ^{/1}	Survey ^{/2}	Growth Rate (%)		Density (Persons/Km2)	
	1961	1971	1976	1961-71	1971-76	1971	1976
Jakarta	2,907	4,576	5,367	4.6	3.8	7,944	9,318
West Java	17,615	21,633	23,454	2.1	1.8	440	477
Central Java	18,407	21,877	23,558	1.7	1.7	634	683
East Java	21,823	25,527	27,103	1.6	1.4	539	572
Jogjakarta	2,241	2,490	2,625	1.1	1.2	793	836
<u>Sub-Total</u>	<u>62,993</u>	<u>76,103</u>	<u>82,107</u>	<u>1.9</u>	<u>1.7</u>	<u>565</u>	<u>610</u>
South Sumatra	2,773	3,444	3,871	2.2	2.7	33	37
Lampung	1,668	2,777	3,439	5.2	4.9	82	102
Bengkulu	406	519	567	2.5	2.0	25	27
Jambi	744	1,006	1,103	3.1	2.1	22	25
Riau	1,235	1,642	1,843	3.1	2.6	16	18
West Sumatra	2,319	2,793	2,994	1.9	1.6	42	45
North Sumatra	4,965	6,623	7,467	2.9	2.7	94	106
Aceh	1,629	2,009	2,226	2.1	2.3	34	37
<u>Sub-Total</u>	<u>15,739</u>	<u>20,813</u>	<u>23,510</u>	<u>2.8</u>	<u>2.8</u>	<u>38</u>	<u>43</u>
West Kalimantan	1,581	2,020	2,281	2.5	2.7	13	15
Central Kalimantan	497	700	812	3.5	3.3	4	5
South Kalimantan	1,473	1,699	1,846	1.4	1.9	49	53
East Kalimantan	551	734	927	2.9	5.4	4	5
<u>Sub-Total</u>	<u>4,102</u>	<u>5,153</u>	<u>5,866</u>	<u>2.3</u>	<u>3.0</u>	<u>9</u>	<u>10</u>
North Sulawesi	1,351	1,718	1,899	2.8	2.3	71	78
Central Sulawesi	652	914	1,014	2.8	2.4	10	11
South Sulawesi	4,517	5,189	5,681	1.4	2.1	63	69
South-East Sulawesi	559	714	785	2.5	2.1	22	24
<u>Sub-Total</u>	<u>7,079</u>	<u>8,535</u>	<u>9,379</u>	<u>1.9</u>	<u>2.1</u>	<u>37</u>	<u>41</u>
Bali	1,783	2,120	2,293	1.8	1.8	377	408
West Nusatenggara	1,808	2,202	2,401	2.0	1.9	101	110
East Nusatenggara	1,967	2,295	2,462	1.6	1.6	47	50
<u>Sub-Total</u>	<u>5,558</u>	<u>6,617</u>	<u>7,156</u>	<u>1.8</u>	<u>1.8</u>	<u>87</u>	<u>94</u>
Maluku	790	1,089	1,258 ^{/3}	3.3 ^{/3}	3.3 ^{/3}	13	15
West Irian	758	923	1,008	2.0	2.0	2	2
<u>TOTAL</u>	<u>97,019</u>	<u>119,233</u>	<u>130,284^{/3}</u>	<u>2.1</u>	<u>2.0</u>	<u>63</u>	<u>69</u>

^{/1} Includes 67,725 homeless persons, 772,654 rural West Irian and 24,270 erroneous entries.

^{/2} Estimates for 23 provinces are of persons living in normal households as given by the Intercensal Surveys. The estimates for the remaining three provinces East Nusatenggara, Maluku and West Irian, only partially covered by the Survey, were obtained by projecting the 1971 census figures by the growth rates of 1961-71. The 1971 census enumerated 265,094 in institutions such as hospitals, jails, etc. The homeless persons according to the 1971 census was 67,725.

^{/3} In the earlier draft, an error was made in the growth rate of Maluku between 1961-71 (an annual rate of 2.5% was used to obtain a March 1976 population estimate of 1,215 thousand). The revised estimate of Maluku's population, using the correct growth rate of 3.3% is 1,258 thousand. This raises the 1976 total population by 43 thousand to 130,284 thousand rather than 130,241 thousand. Population and projection figures in the remaining sections do not incorporate this minor correction.

Sources: 1961 Population Census, 1971 Population Census, and unpublished data of the Intercensal Population Survey 1976.

Table 2: POPULATION OF INDONESIA BY AGE GROUP AND SEX 1961, 1971 AND 1976
(000's)

Age Group	1961 ^{/1}			1971 ^{/2}			1976 ^{/3}		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	8,462	8,580	17,042	9,605	9,493	19,099	9,330	9,045	18,375
5-9	7,634	7,639	15,273	9,525	9,237	18,762	9,522	9,175	18,697
10-14	4,319	3,861	8,179	7,353	6,826	14,179	8,230	7,511	15,741
15-19	3,834	3,874	7,708	5,588	5,738	11,326	6,576	6,870	13,446
20-24	3,452	4,339	7,791	3,602	4,429	8,031	4,564	5,242	9,806
25-29	3,821	4,852	8,673	3,978	4,947	8,925	3,922	4,653	8,574
30-34	3,513	3,690	7,203	3,590	4,214	7,804	3,563	4,089	7,652
35-39	3,298	2,956	6,254	3,948	4,031	7,979	4,021	4,267	8,288
40-44	2,422	2,408	4,830	3,064	3,038	6,102	3,198	3,323	6,521
45-49	1,913	1,759	3,672	2,427	2,223	4,650	2,824	2,643	5,467
50-54	1,646	1,725	3,371	1,903	1,961	3,864	2,084	2,018	4,102
55-59	(1,898)	(1,851)	(3,749)	1,126	1,100	2,226	1,445	1,383	2,828
60-64	(1,898)	(1,851)	(3,749)	1,082	1,256	2,338	1,156	1,272	2,428
65 and over	1,173	1,236	2,409	1,440	1,529	2,969	1,575	1,815	3,390
Not stated	60	57	117	7	8	15	69	67	136
Total	47,494	48,825	96,319	58,339^{/4}	60,029^{/4}	118,368^{/4}	62,078^{/5}	63,478^{/5}	125,556

Note: Total might differ from that derived from the figures in the table because of rounding.

^{/1} Excludes the estimated population of West Irian (700,000).

^{/2} Excludes rural West Irian (772,654) homeless persons (67,725) and incorrectly counted (24,270).

^{/3} Estimated from Intercensal Survey Phase I: excludes population of East Nusatenggara, Maluku and West Irian.

^{/4} 1971 Census total from complete tabulations including estimate for West Irian homeless persons and incorrectly counted and age not stated (15,059) are in thousands; Male 59,103; Female 60,129; total 119,232.

^{/5} Total population including estimates for East Nusatenggara, Maluku and West Irian are in thousands, Male 64,550; Female 65,734.

Source: Central Bureau of Statistics.

Table 3: POPULATION AGE STRUCTURE OF INDONESIA
(In percentages)

Age Group	1961 Census			1971 Census			1976/1 Survey		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
0 - 4	17.8	17.6	17.7	16.5	15.8	16.1	15.0	14.2	14.6
5 - 9	16.2	15.6	15.9	16.3	15.5	15.9	15.3	14.5	14.9
10 - 14	9.1	7.9	8.5	12.6	11.4	12.0	13.3	12.0	12.5
15 - 19	8.1	7.9	8.0	9.6	9.6	9.6	10.6	10.6	10.7
20 - 24	7.3	8.9	8.1	6.2	7.4	6.8	7.4	8.3	7.8
25 - 34	15.4	17.5	16.5	13.1	15.3	14.2	12.0	13.7	12.9
35 - 44	12.0	11.0	11.5	12.0	11.8	11.9	11.7	11.9	11.8
45 - 54	7.5	7.1	7.3	7.4	7.0	7.2	7.9	7.4	7.7
55 - 64	4.0	3.8	3.9	3.8	3.9	3.9	4.2	4.2	4.2
65+	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.9	2.7
Not Stated	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

/1 Excludes population of East Nusatenggara, Maluku and West Irian.

and 1976 survey data bear marks of these effects and show a lessening in the number of people enumerated in the 20 to 24 and 25 to 34 age-groups, respectively. As such, Indonesia had fewer women in the reproductive age-group in the sixties and early seventies than would have been the case otherwise, which assisted a diminution in the birth rate and the rate of population growth.

B. Rate of Population Growth

(a) Population growth rate up to 1971

Population growth rate in Indonesia is determined primarily by births and deaths occurring within the country, as international migration plays an insignificant part. Indonesia's population growth rate during 1961 to 1971 was 2.1% per year, an increase of 0.6% over that recorded during 1930 to 1961. 1/

Indonesia does not have a national system for the recording of births and deaths occurring in the country and it is, therefore, not possible to obtain, as in the case of most developed countries, information on levels or trends in birth and death rates from routine official records. 2/

In the absence of reliable vital statistics, an artifice that is commonly resorted to is to determine levels of mortality and fertility during an intercensal period or shorter intervals within it which can reasonably explain changes in population size and age structure from one census to the next. Such an exercise was undertaken by Widjojo to estimate levels and trends of birth and death rates in Java during the period intervening the

1/ During 1964-70, there was a net emigration from Indonesia of the order of 86,000 persons (immigrants: 693,000, emigrants: 779,000) which formed less than 0.01 percent of the enumerated population in 1971. Despite the encouragement of private or foreign investment in recent years, immigration is generally restricted. The 1971 census enumerated only 140,000 persons born abroad (sex ratio 1,488) and 162,400 (sex ratio 1,657) who reported their last place of residence to be abroad. Likewise, there is little prospect of a sizeable emigration of Indonesians in the years ahead, and it cannot provide a safety valve for the growing population pressure in Java. (Lembaga Demografi, Demographic Fact Book of Indonesia, Jakarta, 1973, p. 133)

2/ A "Sample Vital Registration Project" was undertaken as part of the joint IDA/UNFPA-assisted project to study the feasibility of introducing a routine vital statistics registration system in selected sample areas. On the basis of the experience gained in this project, a decision has been taken to extend the system to the entire East Java Province.

1930 and 1961 population censuses. 1/ Alden Speare followed the same technique to project the whole of Indonesia's population from 1931 to 1961, and then, on to 1971. 2/ The specific assumptions on mortality and fertility levels made by Alden Speare for the different quinquennial periods from 1931 to 1971 are given in Table 4. These assumptions are similar to those used by Widjojo for Java. The mortality assumptions used reflect the poorer health conditions during the 1940's to which reference has been made earlier. Fertility was also assumed to have been lower during this decade as compared with the level of other decades.

The rates of population growth as estimated by this method are given in Table 4. The growth rates diminished from an average of 1.6% per annum during 1931-1941 to 0.9% during 1941-1951. The rate increased to an average of 2.0% during 1951-1961 and maintained an average level of 2.1% during 1961-1971. The estimates tally with those obtained for the period 1931-1961, and 1961-1971 from the data provided by the 1930, 1961 and 1971 censuses, supporting their credibility.

Except for the abnormal period during the 1940's, Indonesia's population growth rate should be assumed to have increased from a level of 1.5% per annum during the early thirties to 2.1% during the late sixties.

(b) Population growth rate during 1971-1976

Phase I of the Intercensal Survey gave an estimate of 125.6 million for the population of 23 provinces fully covered by it. As the 1971 census had recorded a population of 114.8 million for these provinces, the rate of population growth during the 4-1/2 year period which intervened between the census and the survey was 2.0%. This percentage is not likely to be altered to any marked extent, even if allowance is made for the fact that the Intercensal Survey covered normal households and therefore excluded persons staying in institutions such as hospitals, jails, etc., and the homeless. 3/

The average growth of Indonesia's population at about 2.0% per annum for the period 1971-1976 as indicated by the Intercensal Population Survey is in keeping with the average of 2.1% recorded for the decade 1961-1971 and as such should not have caused much concern. However, what

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- 1/ Widjojo Nitisastro (1970), Population Trends in Indonesia, Cornell University Press, Ithaca, op. cit., pp. 149-167.
- 2/ Alden Speare, Jr. (1975), "Quasi-Stable Population Methods for Adjusting Age Distributions in Indonesia," LEKNAS, Indonesia (mimeographed).
- 3/ Persons enumerated as living in institutions numbered 265,094 at the time of the 1971 census while the homeless at that time numbered about 67,000 and together they made up about 3 per 1,000 of the total population.

**Table 4: MORTALITY AND FERTILITY ASSUMPTIONS BY PERIOD DURING 1931-1971
AND RESULTING BIRTH AND DEATH RATES**

Mortality Period	Expectation of Life at Birth		Total Fertility	Resulting Crude Rates		
	Females	Males		Birth	Death	Natural Increase
To 1930	32.5	30.1	6.0	47.4	32.4	15.0
1931-1936	32.5	30.1	6.0	47.2	32.4	14.9
1936-1941	35.0	32.5	6.0	47.1	29.7	17.4
1941-1946	30.0	27.7	5.4	42.8	34.1	8.7
1946-1951	30.0	27.7	5.4	43.8	34.0	9.7
1951-1956	35.0	32.5	6.0	48.9	30.1	18.8
1956-1961	37.5	34.9	6.0	47.7	27.6	20.0
1961-1966	40.0	37.3	6.0	45.5	24.9	20.6
1966-1971	42.5	39.7	6.0	43.8	22.4	21.4

Source: Alden Speare, Jr. (1975), "Quasi-Stable population methods for adjusting age-distribution in Indonesia," LEKNAS, Indonesia (mimeographed).

made this rate startling was that most population projections had placed the rate of population growth at a much higher level, and it had come to be recognized even in planning circles that the rate of growth was probably of the order of 2.5 or 2.6%. 1/ Most of these projections had relied on mortality and fertility estimates of questionable accuracy for the base period. The mortality rates used for the base period were dependent on infant and childhood mortality rates estimated by devious ways from data on the "number of children born" and "number of children surviving" to women in reproductive ages as obtained in the 1971 census. Fairly reliable estimates of fertility levels had been provided by the 1973 Fertility-Mortality survey that had been conducted by the Lembaga Demografi of the University of Indonesia. However, it was difficult to determine the decline in fertility that had occurred in Java and Bali after the inception of the National Family Planning Program in 1970. The reliability of the average annual growth rates in population during 1971-1976 in Indonesia and major regions within it as given by the Intercensal Survey had to be evaluated, particularly in the light of the levels of birth and death rates which they implied.

One such analysis attempted to compare the age-distribution of males and females as obtained in Alden Speare's "low fertility" projection with those obtained in the Intercensal Survey with a view to examine separately the mortality and fertility assumptions made in projecting the population. 2/ This analysis was made separately for Java including Madura, and for the outer provinces. 3/ The major conclusion drawn from it was that the lower population growth rate provided by the Intercensal Survey was due to the projections having overestimated fertility for Java during 1971-1975 and underestimated mortality for Outside Java during the same period (Table 5). The vital rates for 1971-1975 as estimated from

1/ Iskandar had projected Indonesia's population from 1971 to 2000 making four alternative assumptions for decline of fertility and one assumption for decline of mortality. (Beberapa proyeksi penduduk untuk Jawa/Madura, Sumatra, Kalimantan, Sulawesi dan pulau lain: 1971-2000. Lembaga Demografi Faculty Economics, University of Indonesia: mimeographed). In all the projections he had assumed that the average rate of growth of Indonesia's population during 1971-1975 was 2.5%. His assumption of most rapid decline in fertility gave an average population growth rate of 2.3% during 1976-1981 as compared with the assumption of least rapid decline in fertility which gave a rate of 2.8%. The population projections made by Alden Speare, Jr. gave for 1970-1975 a growth rate of 2.3% for the "low fertility" assumption and a rate of 2.4% for the "high fertility" assumption. (Summary Report Projections of Population and Labor Force for Regions of Indonesia, 1970-2005, Vol. I, National Institute of Sciences, LEKNAS, July 1976, mimeographed).

2/ C. Chandrasekaran, "Levels of Birth and Death Rates in Indonesia during 1971-1975," IBRD, Jakarta (mimeographed).

3/ Excludes East Nusatenggara, Maluku and West Irian not covered by the Survey.

Table 5: BIRTH AND DEATH RATES DURING 1971-1975 IN INDONESIA

Area	Population (Mid Period 1971-1975) (000's)	Birth Rate (annual)	Death Rate (annual)	Natural Increase Rate (annual)	Migration rate (annual) per 1000	Growth Rate (annual per cent)
23 provinces ^{/1}	119,123.6	40.0	19.8	20.2	0.0	2.02
Java	73,445.9	36.6	18.4	18.2	-0.9	1.73
13 provinces	40,677.8	47.1	23.1	24.0	1.7	2.57
All Indonesia	123,652.6	40.3	19.9	20.4	0.0	2.04

/1 Excluding Nusatenggara, Maluku and West Irian.

Source: C. Chandrasekaran, "Levels of Birth and Death Rates in Indonesia during 1971-75," IBRD, Jakarta (mimeographed).

the Survey were as follows: The birth and death rates for Java were 36.6 and 18.4 per thousand, respectively, giving an average natural increase rate of 1.8%. For Outside Java the birth and death rates were 47.1 and 23.1 per thousand, respectively, giving a natural increase rate of 2.4% per annum. Including the effects of migration, assumed at the levels of 1961-1971, the average annual growth rate for Java was 1.7% while that for Outside Java was 2.6%. The birth and death rates for Indonesia during 1971-1975 were 40.3 and 19.9 per 1,000, respectively, giving a growth rate of 2.0% per annum as recorded by the Intercensal Survey.

C. Components of Population Growth

(a) Mortality

Official vital statistics heavily underestimates both births and deaths and past levels of birth and death rates have to be estimated indirectly using other sources of data.

The reported survivorship of children born to women in reproductive ages provides a method for estimating survival ratios of children born up to the second, third, fifth, etc., year of life. Given the broad relationships between mortality rates for different age-groups, data on survivorship of children gives a method for estimating death rates at different ages. 1/ This method has been widely used in Indonesia. Mortality estimates have also been worked out using census age distributions and the growth rates during the intervening period by applying the "stable population" model. 2/

(1) Trends in Mortality

Questions on children ever born and children surviving were asked in both the 1961 and 1971 censuses, but in the 1961 census they were tabulated only for Jakarta, East Java and Jogjakarta. According to a comparative analysis, the probability of survival of babies to age 2 during the 4 or 5 years preceding the censuses appears to have improved

1/ United Nations (1967), Estimates of Fertility and Mortality based on Reported Age-Distributions and Reported Child Survival, Chapter III, Methods of Estimating Basic Demographic Measures from Incomplete Data. Population Studies No. 42.

2/ United Nations, op. cit.

significantly. 1/

The 1971 census data implied an infant mortality rate of about 140 per 1,000 births. This corresponds to 160 per 1,000 live-born dying before attaining the age of 2 years, of about 195 per 1,000 live-born dying before attaining the age of 5 years. Similar estimates of infant and childhood mortality for the latter half of the 1960's were also given by the 1973 Fertility-Mortality Survey. However, it should be recognized that all these figures are likely to underestimate mortality, since they are based on proportions of surviving children which are likely to be overestimated in a census or survey.

The 1973 Fertility-Mortality Survey provided estimates of the proportion of children dying before age 5, for cohorts of children born during the 5 year period extending from 1945-1949 to 1965-1967. 2/ The trends are shown in Table 6 for the urban and rural areas of the provinces in Indonesia covered by the survey. A continuous decline in childhood mortality appears to have occurred both in urban and rural areas during the 30 years preceding the survey.

Turning to the trend in childhood mortality since 1971, Phase II of the Intercensal Survey collected data on child-survivorship according to the age of the mother. Preliminary analysis indicates a sharp decline in childhood mortality during 1971 to 1975. The infant mortality rate is estimated at 116 per 1,000 live births; and out of 1,000 live born, 170 are estimated to die before reaching 5 years of age.

As stated earlier, the demographic model which well described Indonesia's population growth between the 1961 and 1971 censuses gave for the period 1961-1971 an expectation of life at birth of 42.5 years for females and 39.7 years for males. On the other hand, the infant mortality after 1970 and that between 1965-1970 and 1970-1975, expectation of life at birth both for males and females increased by about 5 years.

(2) Mortality differentials

Childhood Mortality. The 1971 census data on child-survivorship yielded the following information on differentials on infant mortality rates in the year just prior to the census. 3/ Such a differential also

1/ Geoffrey McNicoll and Si Gde Made Mamas, "The Demographic Situation in Indonesia," East-West Population Institute Paper No. 28, Honolulu, December 1973, Table A3, p. 43.

2/ Such rates based on child-survival data are likely to be more reliable in describing trends rather than levels of mortality.

3/ Lee-Jay Cho, Sam Suharto, Geoffrey McNicoll and S.G. Made Mamas, Levels of Fertility and Mortality in Indonesia, Jakarta: Biru Pusat Statistik, 1976, pp. 62-67.

**Table 6: INDONESIA II: PROPORTION OF CHILDREN DYING BEFORE AGE FIVE
FROM 1000 LIVE BIRTHS, BIRTH YEAR COHORT 1945-1949 TO 1965-1967**

Region	Child Birth Year				
	1945-49	1950-54	1955-59	1960-64	1965-67
<u>Urban</u>					
West Java	259	216	180	161	136
Central Java	253	171	161	126	117
East Java	228	168	137	120	108
Sumatra	263	154	137	131	117
Sulawesi	212	184	178	138	152
<u>Rural</u>					
West Java	282	271	245	217	188
Central Java	301	218	178	164	157
East Java	261	231	192	143	117
Sumatra	383	251	192	180	175
Sulawesi	263	244	236	208	177
Bali	245	239	212	194	185

Source: Peter F. McDonald, Mohammad Yasin and Gavin Jones, "Levels and Trends in Fertility and Childhood Mortality in Indonesia," in Indonesian Fertility-Mortality Survey, 1973, Monograph #1, Lembaga Demografi, Fakultas Ekonomi, Universitas Indonesia.

held good in respect of mortality of children before they attained 5 years of age (Table 6). There is a tendency for the differentials to narrow and this is most marked in the case of East Java.

Urban-Rural. The infant mortality rate was lower in urban than in rural areas, the rate for urban areas being 114 and for rural areas 149.

Regions. The infant mortality rate differed little between the provinces. In Java-Madura the estimated rate was 144; Sumatra 132; Kalimantan 137; Sulawesi 144 and other islands 145. Within Java-Madura the rate varied from 125 in Jakarta to 159 in West Java. The rates for East Java, Central Java and Jogjakarta were 133, 147 and 147, respectively. Childhood mortality variations within Java showed the same pattern of the rates declining from West Java through Central Java to East Java.

Level of Education. Judged by the educational attainment of the mother, children of mothers with "no schooling" had the highest rate of mortality of 160 and those with mothers who had high-school or college education had the lowest rate of 63. Those with mothers who had primary school education had an intermediate rate of 128.

It was noted above that Sumatra had a lower infant mortality rate as compared with Java-Madura. When the rate is studied with respect to mother's level of education, Java-Madura recorded lower rates for the "no school" and "high school and college" categories. Among children of women with primary school education, the rate was the same in Java-Madura and Sumatra (Table 7). Sumatra had intrinsically higher rates but showed an overall lower rate because of the higher level of education of the mothers.

Rates of childhood mortality in Indonesia are highly related to education and economic conditions, so that the improvements in childhood mortality rates since Independence may reflect improvements in these determining factors. However, the level of childhood mortality in Indonesia is very high, judged by contemporary standards. Sri Lanka, for instance, recorded an infant mortality rate of 47 per 1,000 births for the period 1971-1974; it is estimated that according to the mortality conditions which prevailed in Sri Lanka in 1971, 70 children out of 1,000 live born died before completing the fifth year of life. 1/

Adult Mortality

Analysis of Phase I of the Intercensal Survey data has shown that male adult mortality is higher than female adult mortality, much higher than that predicted by the set of Model Life Tables. 2/ On the basis of the

1/ United Nations (1976), Economic and Social Commission for Asia and the Pacific, Population of Sri Lanka, ESCAP Country Monograph Series No. 4, Bangkok.

2/ United Nations, Methods of Estimating Basic Demographic Measures from Incomplete Data, Manual on Methods of Estimating Population, Manual IV, Annex I, pp. 81-92, New York.

Table 7: ESTIMATES OF INFANT MORTALITY RATE BY EDUCATIONAL ATTAINMENT OF MOTHER AND BY REGIONS

Regions	Level of Education			All Levels
	No School	Primary School	High:School & College	
Indonesia	160	127	63	141
Sumatra .	164	126	73	132
Java & Madura	157	126	57	144
Kalimantan	156	125	74	137
Sulawesi	169	130	74	144
Other Islands	175	136	62	145

Source: Derived from Tables 8.1 and 9.1, Lee Jay cho et al (1976), Levels of Fertility and Mortality in Indonesia. Biro Pusat Statistik, Jakarta.

rate of 140 per 1,000 live births estimated for the period prior to 1971 would indicate an expectation of life at birth of 48.0 years for females and 45.0 for males, on the basis of broad relationships which are assumed to prevail between mortality rates for different age-groups. 1/

A similar feature was also seen for the period 1971-1975. The death rate in 23 provinces (excluding East Nusatenggara, Maluku and West Irian) as estimated from the population growth data provided by Phase I of the Intercensal Survey was 19.8 per 1,000. This level of the death rate is equivalent to an expectation of life at birth for females of 47.5 years and for males of 42.1 years. On the other hand, the infant mortality rate of 116 estimated for 1971-1975 from the child-survivor data given by the Intercensal Survey is equivalent to an expectation of life at birth for females of 52.5 years and for males of 49.5 years.

Either Indonesian adult mortality is much higher than that expected on the basis of childhood mortality rates or the difference is due to inadequacies in basic data and estimation procedures. 2/ However, there is substantial evidence that mortality rates continued to decline. From the adult mortality among males and females estimated from Phase I of the Intercensal Survey, female expectation of life at age 10 was about 3 years higher than the corresponding male expectation of life in Java. In Outside Java, the expectation of life at age 10 among females exceeded the corresponding expectation of life among males by about 4 years. For Indonesia as a whole the difference was 3.5 years. The Model Life tables show an excess of 2 years in the expectation of life at age 10 of females as compared to that of males.

Adult mortality was higher in Outside Java than in Java. The expectation of life at age 10 for females in Java was one year higher than in Outside Java. For males the expectation of life at age 10 in Java was two years higher than that estimated for Outside Java.

(3) Overall mortality picture

The mortality rate in Indonesia declined from 1965-1970 to 1970-1975, and as a result, the expectation of life in the country increased

1/ In order to facilitate demographic analysis, "model" life tables have been worked out for different values of expectation of life at birth of females. The selected values vary between 20.0 years and 75.0 years, at intervals of 2.5 years and the life table levels are made to increase from level 1 to level 22, in an ascending order (United Nations, 1967, Methods of Estimating Basic Demographic Measures from Incomplete Data, Manuals on Methods of Estimating Populations, Manual IV, Annex I, Model Life Tables, pp. 81-92, New York.) The expectation of life as judged from the mortality rates of the entire population is roughly two levels below that indicated by the estimated infant mortality rate.

2/ Between the two sets of estimates, the ones obtained from population growth rate are considered more reliable.

by about 5 years both for males and females. Two methods of estimation gave different values for the expectation of life at birth in these periods. 1/ Reasonable figures for the whole of Indonesia during 1970-1975 are around 47.5 years for females and around 43.0 years for males. Normally, the female expectation of life at birth is higher than that of males by about 3 years. In Indonesia the differential is more marked. Java had a slightly higher expectation of life at birth during 1970-1975 as compared to Outside Java.

The increase in expectation of life at birth of about 5 years between 1965-1970 and 1970-1975 is more than what normally occurs. One likely reason for the rapid increase is that health conditions in Indonesia had deteriorated in the sixties, and a recovery took place only after 1968.

Substantial and continuous declines in childhood mortality have been observed in all regions of Indonesia since 1945. The rates for 1965-1967 were only about 50% of those rates applying 20 years earlier in 1945-1949. The decline in rural areas was only slightly less than in urban areas. In view of the broad relationships between mortality rates for different age groups there is presumptive evidence that adult mortality had also declined since the forties.

Urban areas have lower mortality than rural areas. The mortality rates of children were correlated with the educational attainment of the mother; children of mothers with no schooling recording the highest rates.

(b) Fertility

(1) Estimates of Fertility during the Late 1960's

The total fertility rate gives the average number of children born to a woman throughout her reproductive life if subject to the fertility conditions prevalent during a specific period, and is a useful summary measure of the level of fertility during that period. 2/ This rate as estimated from the 1971 Census, 1973 Fertility-Mortality Survey, 1976 Intercensal Population Survey, Phase I, and the 1976 Indonesian Fertility Survey is shown in Table 8 for Indonesia and for major provinces and regions within it, for the late 1960's. The rates obtained from the different sources are very compatible. The total fertility rate for Java was about 5.2 while that of Indonesia was about 5.5. The higher value for Indonesia as compared to that for Java was due to higher rates of child-bearing by women living in Outside Java. The regional differentials in the number of children born were quite pronounced. Within Java, the rate differed between provinces. The estimated total fertility rate was between 5.8 and 6.1 for West Java, 5.3 for Central Java, 5.0 for Jakarta and 4.4 to 4.7 for Jogjakarta and East Java. Bali had a rate of 5.8. The rates for Sulawesi and Kalimantan were

1/ United Nations, Methods of Estimating Basic Demographic Measures from Incomplete Data, Manual on Methods of Estimating Population, Manual IV, Annex I, pp. 81-92, New York.

2/ The total fertility rate gives a measure of "period fertility". A similar measure is the "average number of children born" to women who have passed the reproductive age-group, which gives fertility over a life-span. The total fertility rate is preferred as a measure for studying fertility changes during short time intervals.

Table 8: TOTAL FERTILITY RATES OF INDONESIA BY PROVINCE/REGION, 1965-1971

	Census 1971 / <u>1</u> (1967-70)	Intercensal Survey I / <u>2</u> (1967-70)	1973 Fertility- Mortality Survey / <u>3</u> (1965-70)	1973 Fertility- Mortality Survey / <u>3</u> Corrected (1965-70)	1976 Indonesian Fertility Survey (1967-71) / <u>4</u>
Jakarta	5.1	4.9	N.A.	N.A.	5.9
West Java	5.9	5.8	6.6	6.1	5.0
Central Java	5.3	5.4	5.3 / <u>5</u>	5.0 / <u>5</u>	5.3
Jogjakarta	4.7	4.7	N.A.	N.A.	4.4
East Java	4.7	4.7	5.0	4.4	4.6
Java-Madura	5.2	5.2	5.5.	5.1	5.3
Bali	5.8	5.7	5.9	5.8	5.8
Java & Bali	5.3	5.2	5.5	5.1	5.3
Kalimantan	5.8	6.1	N.A.	N.A.	N.A.
Sulawesi	5.9	6.2	6.4	N.A.	N.A.
Sumatra	6.4	6.6	7.1	N.A.	N.A.
Indonesia	5.5	5.5	5.9	N.A.	N.A.

/1 See Central Bureau of Statistics, Estimates of Fertility and Mortality in Indonesia based on the 1971 Population Census, 1976, pg. 1-12.

/2 Estimates obtained by application of the "own-children" method. Figures provided by the Central Bureau of Statistics

/3 See McDonald, Yasin & Jones, Levels and Trends in Fertility and Childhood Mortality in Indonesia, 1976, pg. 50. Revised estimates multiplies estimated age specific marital fertility rates (pg. 34) by proportion of women currently married, as obtained from 1971 Census.

/4 1967-71 estimates obtained by multiplying 1967-71 age specific marital fertility rates by proportion of women currently married by age as obtained from 1971 Census.

/5 Fertility-Mortality Survey estimate for Central Java includes Jogjakarta.

a little higher than that of West Java. Sumatra recorded the highest rate indicating that on an average, a woman from the island exposed to child-bearing throughout her reproductive life was bearing 6.5 children, which was two children higher than that for East Java. Women in the West of Java bear 1.5 children more than women in the East.

The pattern of fertility during the late sixties in Indonesia can be described as an "early marriage, high fertility" pattern. In a country with late marriage and low fertility, child-bearing tends to be concentrated heavily at ages 20-34 and especially in the age group 20-29. This is not the case in Indonesia, where fertility rates are quite high at ages 15-19 and 35-39. It is common for a woman's child-bearing life to be spread over a 20-year span or longer.

The regional variations in fertility are highlighted by the patterns of age-specific fertility rates. The Javanese pattern of early marriage results in a higher fertility rate at ages 15-19 in East Java than in Sumatra, despite much lower total fertility. Fertility at the very young and older child-bearing ages constitutes a fairly large proportion of total fertility (Table 9) in both urban and rural areas of all regions.

Modernizing influences have been affecting the pattern of reproduction even prior to the 1970's. According to the findings of the 1973 Fertility-Mortality Survey, the fertility rate at ages 15-19 appeared to have declined in every region except rural West Java, a decline clearly linked with a rise in the average age at marriage, as well as at ages 35-44 in most urban areas. The observed trends, a decline in fertility at the youngest and oldest child-bearing ages, more pronounced in urban than in rural areas, are fairly typical of countries entering the early stages of a transition to lower fertility rates.

Urban-rural differentials in fertility were rather pronounced even by 1967-70. The total fertility rate for urban and rural areas for major provinces and regions given in Table 10 show an excess of 0.6 children for rural women in Java-Madura as compared to urban women. Differences of this order were also found among women living outside Java. The specific fertility rates for urban and rural areas given in Table 9 show earlier, longer and more frequent production in rural areas.

Mother's education, especially to high school or university level, was found to have lowered fertility during 1967-69 (Table 11). In the whole of Indonesia, women with university education had on average 2.6 children fewer than those with elementary school education on completion of their reproductive life. Women with high school education had 0.7 children fewer than women with elementary education.

A feature of the relationship between fertility and level of education of women is that women with no schooling had much lower fertility than those with elementary education and somewhat lower fertility than those with high school education (Table 11). Higher marital disruption, longer

Table 9: ESTIMATED AGE SPECIFIC FERTILITY RATES FOR URBAN AND RURAL AREAS
BY MAJOR ISLANDS IN 1967-70

		<u>15-19</u>	<u>20-24</u>	<u>25-29</u>	<u>30-34</u>	<u>35-39</u>	<u>40-44</u>	<u>45-49</u>	<u>Total Fertility Rate</u>
Java-Madura	Urban	117	250	251	187	104	40	10	4.7
	Rural	176	282	257	193	111	48	14	5.3
Sumatra	Urban	97	289	329	268	161	65	16	6.0
	Rural	169	332	324	259	157	70	21	6.6
Sulawesi	Urban	97	244	271	222	125	52	14	5.1
	Rural	136	299	304	248	153	75	27	6.1
Indonesia	Urban	115	263	270	207	118	47	12	5.1
	Rural	167	293	275	213	126	57	12	5.7

Source: Estimates of fertility and mortality in Indonesia 1976 Central Bureau of Statistics.

Table 10: ESTIMATED TOTAL FERTILITY RATE
FOR URBAN AND RURAL AREAS BY PROVINCE/
REGION, 1967-1970

	Urban	Rural
Jakarta	5.1	-
West Java	5.5	6.0
Central Java	4.4	5.4
Jogjakarta	4.1	4.8
East Java	4.1	4.8
Java-Madura	4.7	5.3
Bali	-	5.9
Kalimantan	5.6	5.9
Sulawesi	5.1	6.1
Sumatra	6.0	6.6
Indonesia	5.1	5.7

Source: Estimates of Fertility and Mortality in
Indonesia 1976 Central Bureau of
Statistics.

Table 11: ESTIMATED TOTAL FERTILITY RATES BY EDUCATION
OF WOMEN BY MAJOR ISLANDS, 1967-1969

	No Schooling	Elementary School	High School	University
Java-Madura	5.0	5.8	5.3	3.7
Sumatra	6.3	7.0	6.4	3.5
Kalimantan	5.7	6.3	5.8	2.5
Sulawesi	6.0	6.5	5.2	2.9
Other Islands	6.5	6.8	5.9	3.6
Indonesia	5.3	6.2	5.5	3.6

Source: Estimates of Fertility and Mortality in Indonesia 1976, Central
Bureau of Statistics.

voluntary postpartum abstinence and lower fecundity have been shown to be associated with this feature. 1/

The differential pattern of fertility among women belonging to various educational or economic groups hinges on the degree to which women's exercise of voluntary control will augment or counteract the differentials that change in cultural practices and in health and diet conditions are likely to bring about on their fertility.

The Fertility-Mortality Survey brought out a feature which could significantly affect future trends in Indonesian fertility, namely the relatively high percentage of women who remained childless in some regions. Childlessness was most common in East Java, followed by Central Java, West Java and Bali as a group, and then Sulawesi and Sumatra. The incidence of childlessness in East Java was around 16% among women who had nearly completed child-bearing age. Rural Sulawesi and Sumatra recorded the lowest degree of childlessness, around 6 to 8%. In the Indonesian situation of early and near universal marriage and strong desire to have children, childlessness implies sterility or sub-fecundity of one or more marriage partners.

To summarize, by world standards, very high and largely uncontrolled fertility was characteristic of large parts of Indonesia prior to 1970. Increasing age at marriage led to a reduction of fertility in the ages 15-19 during the sixties; however, this decline was offset by a rise at ages 20-24. Urban and rural differentials had emerged, and were characterized by later, shorter, and less frequent reproduction in urban areas. Women's educational status helped to lower fertility only at higher levels of education. Women with elementary school education tended to have more children as compared to women with no schooling showing that elementary education per se could not help to lower fertility. In some regions, particularly East Java, there was evidence of higher sterility and/or sub-fecundity among couples than is commonly found.

(2) Estimates of Fertility in the Early 1970's

The Intercensal Population Survey provides a basis for estimating fertility and birth rates through the use of several types of data and analytical techniques. However, a large part of the information available has yet to be analyzed. The age-specific fertility rates and total fertility rates for provinces in Java and major provinces Outside Java as estimated the "own-children's method" for the periods 1967-70 and 1971-75 are given in Table 12. According to these figures the total fertility rate for Java-Bali during 1971-75 was 4.9, showing a decrease of 7.5% from the level of

1/ Terence H. Hull and Valerie J. Hull (1977), "The Relation of Economic Class and Fertility: An Analysis of Some Indonesian Data," Population Studies, Vol. 3, No. 1, pp. 43-57.

Table 12: AGE-SPECIFIC FERTILITY RATES OF INDONESIA BY PROVINCE IN JAVA/REGION 1967-70 AND 1971-75 ^{/1}

Province/Region		15-19	20-24	25-29	30-34	35-39	40-44	45-49	TFR
Jakarta	1967-70	140	266	268	198	110	41	12	5.1
	1971-75	107	241	252	185	113	46	12	4.8
West Java	1967-70	208	305	280	211	119	50	14	5.9
	1971-75	164	285	271	211	119	59	19	5.6
Central Java	1967-70	144	284	265	199	115	47	12	5.3
	1971-75	119	261	244	187	112	59	11	4.9
Jogjakarta	1967-70	68	253	252	199	117	48	14	4.7
	1971-75	66	215	237	194	110	57	15	4.5
East Java	1967-70	149	246	225	169	96	45	14	4.7
	1971-75	125	229	206	155	88	44	17	4.3
Bali	1967-70	134	298	300	229	137	67	26	5.8
	1971-75	98	255	260	203	127	71	32	5.2
Java-Bali	1967-70	162	275	256	192	110	48	14	5.3
	1971-75	130	254	240	183	106	51	16	4.9
Kalimantan	1967-70	158	288	286	223	131	69	23	5.8
	1971-75	129	269	278	215	134	71	26	5.6
Sulawesi	1967-70	129	289	298	244	148	71	25	5.9
	1971-75	112	274	299	239	156	78	25	5.9
Sumatra	1967-70	154	324	324	260	157	69	20	6.4
	1971-75	123	305	298	246	149	73	25	6.1
Indonesia	1967-70	155	286	273	211	124	55	17	5.5
	1971-75	127	265	256	199	118	57	18	5.2

^{/1} The figures for 1967-70 were obtained by using the 1971 census data. Those for 1971-75 were obtained from the data obtained by the Intercensal Population Survey.
Source: Central Bureau of Statistics (unpublished).

5.3 during 1967-70. 1/ The decline for the whole of Indonesia during this period was 5.4%, indicating only a slight decline outside Java-Bali. Within Java-Bali, the declines were 4% in Jogjakarta, 5% in West Java, 6% in Jakarta, 8% in Central Java, 9% in East Java and 10% in Bali.

The age-specific fertility rates given in Table 12 are subject to errors in age-reporting and changes observed in these rates cannot be accepted without reservation. However, consistent decline in the specific fertility rates for age-groups 15-19 between 1967-70 and 1971-75 observed in all parts of Indonesia draws attention to further increases in age at marriage which had been occurring over the last two decades. The Singulate Mean Age at Marriage for females as estimated from the 1971 Census and the Intercensal Survey Phase I showed an increase in all provinces of Java-Bali (Table 13). The increase was 0.3 and 0.6 years in Jogjakarta and Bali where the mean age at marriage of females was already on the high side. Jakarta, West Java, and East Java recorded an increase of one year, while the mean age at marriage for Central Java increased by 0.7 years.

Increases in age at marriage affect the age marital patterns particularly in the younger age groups. The Intercensal Population Survey Phase III, viz the Indonesian Fertility Survey, showed that proportions of currently married women in the 15-19 and 20-24 age groups of Java-Bali were markedly lower in 1976 than in 1971 (Table 14).

Since in countries like Indonesia, it is rare for children to be born out of wedlock, the 7.5% decline in fertility which, as observed above, occurred in Java-Bali between 1967-70 and 1971-75 should be accounted for by two factors, (1) changes in the proportion of currently married women and (2) changes in marital fertility. A procedure to partition the effects of these factors has been proposed by Ansley Coale. 1/ Following this procedure, fertility declined to 91.4% of its value between 1967-70 and 1971-75. If marital fertility had remained unchanged between these two periods, the

1/ The specific fertility rates corresponding to the total fertility rate of 4.9 gives an average birth rate of 36.8 per 1,000 during 1971-75 for Java-Bali. This is in close agreement with the estimate of 36.6 obtained by Chandrasekaran (op. cit.).

2/ Ansley J. Coale, "Factors Associated with the Development of Low Fertility: An Historical Summary," United Nations World Population Conference 1965, Vol. 2, pp. 205-209. Using the terminology given in this paper, If, Im and Ig for the period 1967-70 were found to be .442, .750 and .589 respectively (the Im value refers to 1971). The If, Im and Ig values for 1971-75 were .404, .725 and .557 respectively.

Table 13: SINGULATE MEAN AGE AT MARRIAGE FOR FEMALES

	1971 Census	Intercensal Population Survey
West Java	17.7	18.7
Jakarta	20.4	21.5
Central Java	18.9	19.6
Jog akarta	21.7	22.0
East Java	18.5	19.4
Bali	21.8	22.4

Source: Central Bureau of Statistics (unpublished).

Table 14: AGE SPECIFIC FERTILITY RATES USED IN MAKING
POPULATION PROJECTIONS

Age Group	Java				Outside Java		
	1971	1976	1986	2001	1971	1976	2001
15-19	140	121	94	67	142	119	87
20-24	245	234	182	130	286	287	209
25-29	243	220	171	122	302	292	213
30-34	182	168	131	93	241	237	173
35-39	120	97	75	54	160	146	106
40-44	51	46	36	26	79	73	53
45-49	19	14	11	8	30	26	19
Total Fertility Rate	5.0	4.5	3.5	2.5	6.2	5.9	4.3

Note: The rates refer to the 12 month-period centered at the end of the years indicated above.

Source: Central Bureau of Statistics.

fertility level in 1971-75 would have declined to 90.6% of the 1967-70 level, owing to a change in the proportion currently married. If, on the other hand, the proportion currently married had remained unchanged and marital fertility alone had changed, fertility during 1971-75 would have been 94.6% of the 1967-70 levels. On this basis it can be stated that about 38% of the decline in fertility between 1967-70 should be attributed to changes in the proportion currently married and the remaining 62% to changes in marital fertility. A supportive finding, although not on equally firm demographic footing, was made by an unpublished analysis made by the Central Bureau of Statistics. This analysis showed that fertility declined by 15% between 1971 and 1976. Thirty percent of this decline was attributable to changes in marital patterns and the remaining 70% to changes in marital fertility. Based on the above findings fertility in Java and Bali as given by the total fertility rate declined by an average annual rate of 2% between 1971 and 1976 owing to changes in marital fertility.

The National Family Planning Program began to be implemented vigorously in 1970, in the provinces of Java and Bali. The number of new acceptors recruited annually increased rapidly from 53,000 in 1969-70 to 1,979,000 in 1976-77. The target for 1977-78 was 1.98 million, and indications at the end of January 1978 were that this target would certainly be reached. In terms of married women aged 15-44 years, the acceptors recruited annually increased from 5 per 1,000 in 1969 to 137 per 1,000 in 1976-77.

The increase in the number of acceptors in Java-Bali was obtained at the expense of popularising the pill method which has less consistent use as compared to IUD which was the most popular method at the beginning of the national program. 1/ Nevertheless, there has been a continuous increase in current users and, as estimated by BKKBN, the percentage of married women aged 15-44 who were currently using a method increased from 7.8 in 1972-73 to 24.1 in 1976-77 in Java-Bali. Such an extent of use around 1976 is corroborated by the information obtained in the Indonesian Fertility Survey. The decline in marital fertility in Java-Bali observed between 1971 and 1976 should be attributed largely to the operation of the national family planning program as, according to the Indonesian Fertility Survey, 84% of the couples using any method of contraception in 1976 were using "modern methods," and 88% of those using "modern methods" had obtained these methods from the program.

In 1974-75 the national program was extended to 10 provinces in Outside Java. The response from these islands has been encouraging and by January 1978, it was estimated that 8% of married women aged 15-44 were currently practising a contraceptive method obtained through the program. The Government's intention to extend the program to the remaining

1/ In 1969-70 the percentages of acceptors who took to the different methods were oral 27.5, IUD 54.7 and condom 17.9. In 1976-77 the percentages were 66.8, 18.4, and 12.9 respectively. Two percent of acceptors in 1976-77 accepted other methods such as injectables.

provinces, with 10% of Indonesia's population, in the third five-year (1979-84) plan will make the program a truly national program.

(3) Fertility Trends in the Future

Indonesia's family planning program has been outstanding in its achievements. A strong political commitment, implemented by a well-organized administrative system reaching from the center down through successive levels to the village level has been responsible for about 28% of married women in the reproductive age-group now practising modern methods of contraception.

What of the future? The long-term aim of the family planning program is to reduce Indonesia's fertility by 50% by the year 2000. A short-term goal of fertility decline has been set in terms of contraceptive prevalence rates to be attained by 1983-84. 1/ These are 35% for Java-Bali, 25% for the other 10 provinces to which the program was extended in 1974-75 and 15% for the remaining provinces which will be brought into the program in the third five-year plan. The achievements made so far lend justification to the view that the short-term goal is realizable. Such realization will lead to a total fertility rate of 3.5 by 1983-84 for Java-Bali and to an average of 5.0 in other provinces. In contemporary life, Korea reduced its total fertility rate from 6.3 in 1955-60 to 3.9 by 1970-75 and Indonesia's program has been making even a greater impact than that made by the Korean program in its initial phase. 2/

The long-range goal implies a total fertility rate of 3.2 for the whole of Indonesia by the year 2000, with the rate for Java-Bali of 2.6. The prospect of every woman in Java-Bali producing on an average only 2.6 children in the course of her reproductive life is alluring but such low levels of reproduction have been recorded only in "Western" countries and Japan, and in city-countries such as Singapore and Hong Kong. Low levels of reproduction require a change in traditional attitudes towards fertility behavior and have often been accompanied with low mortality levels, high-degree of urbanization, and high degree of modernization, along with high standards of living. In addition, the means by which fertility control is achieved have included, not only the use of contraceptive methods but also the practice of sterilization and abortion.

Those behind the family planning program in Indonesia are aware of the complexities and problems that are likely to arise in working towards reaching low fertility levels. Already there are attempts to integrate family planning with other developmental efforts. The program is becoming increasingly community-oriented and the aim is to make it a "village" and "hamlet" based people's movement. Acceleration in trends towards improvement of public health and particularly of infant and children, raising the educational, economic and social status of women and

1/ Faster declines in fertility are now being considered.

2/ Kap Suk. Koh and D.J. Nichols, "Measurement of the Impact of the National Family Planning Program on Fertility in Korea: 1960-65," Journal of Family Planning Studies, Vol. 4, November 1977.

increasing the general well-being of the population are some of the ways in which the "small-family" norm is likely to take shape in the Indonesian community. Development of such norms and adaptability to use modern methods of fertility control devices as they become available, are pre-requisites to reaching the low levels of fertility that are envisaged for the turn of the century.

D. Population Projections 1971-1976 to 1996-2001

Several projections of Indonesia's population have been made since the 1971 census. Iskander made a set of four projections for the period 1971-2001 using one assumption for mortality change and a set of four alternative assumptions for fertility change. 1/ Leknas-Lipi made a set of eight projections for 1970-2005 using all possible combinations of two alternative trends for fertility, two alternative trends for interregional migration and two alternative trends for urbanization, within the ten regions into which the country was divided by Bappenas. 2/ These projections and several others were made before the 1976 Intercensal Population Survey was undertaken. Although the data obtained from this survey have not been fully tabulated or analyzed, one of the findings makes it necessary to re-examine the assumptions made in previous projections and make fresh attempts to project Indonesia's population. The survey gave a population growth rate of about 2.0% per annum between 1971 and 1976, whereas the growth rate for the period as given by Iskander was 2.5%. Leknas' projections gave a growth rate of 2.3% to 2.4% for 1970-75. The fertility and mortality levels for the early seventies assumed in the post 1971 census projections, therefore, require reconsideration.

(a) Mortality and Fertility Levels in the early 1970's

(1) Mortality Level. In the absence of a reliable routine level statistics registration system, mortality levels during the late sixties had to be estimated. The method most often used in Indonesia is the Brass technique which utilizes the data provided by a census or survey on the number of children born and the number of children surviving for women in different age-groups. 3/ The mortality estimate as obtained from such data given by the 1971 census was West Model Life Table Level 12, equivalent to an expectation of life at birth of 47.50 years for females and 44.62 years

1/ Iskander, N., "When Z.P.G. in Indonesia?", Universitas Indonesia, Fakultas Ekonomi, Lembaga Demografi, Jakarta, Indonesia.

2/ Population Projections for Indonesia, according to Bappenas regions, Vol. II, Leknas Lipi, Jakarta, 1976.

3/ United Nations 1967 Manuals on methods of estimating population, Manual IV, Methods of Estimating Basic Demographic Measures from Incomplete Data, Chapter VII, Examples of estimates based on questions about fertility and mortality, pp. 73-75.

for males. 1/ This level is likely to be on the high side because of the tendency for the census to underestimate deaths occurring in the past. Leknas found that Life Table Level 10, implying an expectation of life at birth of 42.5 for females and an expectation of life at birth of 39.7 years for males for the period 1965-70 along with other reasonable assumptions could explain the population growth between the 1961 and 1971 censuses. In making population projections Leknas assumed an overall mortality level 12 for the period 1971-1975 and in justification stated "Both Iskander and the Central Bureau of Statistics have assumed that level 11 best approximates mortality prior to 1971."

Analysis of the data given by the Intercensal Survey along with those given by the 1971 census indicates that the Indonesian adult female mortality during 1971-75 corresponded to a Life Table Level 12 (expectation of life at birth 47.5 years) while the male adult mortality was higher and corresponded to a Life Table Level 11 (expectation of life at birth 42.12 years). The analysis further found that the mortality rate was higher Outside Java than in Java, with differentials in death rates between the sexes also being more marked Outside Java than in Java. 2/ The female adult mortality in Java corresponded to a Life Table Level of 12 in Java (expectation of life at birth 47.5 years) and 11.5 Outside Java (expectation of life at birth 46.25 years). The male adult mortality corresponded to level 11.3 (expectation of life at birth 42.87 years) and level 10.2 (expectation of life at birth 40.2 years) in Java and Outside Java respectively.

(2) Fertility Level. The total fertility rate for 1967-70 as estimated by the "own-children" method from the data provided by the 1971 census was 5.3 for Java-Madura, 6.3 for Outside Java and 5.5 for the whole of Indonesia. The rate for 1971-75 as estimated by the "own-children" method from the data provided by the 1976 Intercensal Survey was 4.9 for Java-Madura, 6.1 for Outside Java and 5.2 for the whole of Indonesia. The total fertility rate for mid-1971 to mid-1972 for Java is 5.0 and for Outside Java is 6.2. The specific fertility rates associated with these total fertility rates are shown in Table 14.

(b) Assumptions used in Making Population Projections

(1) Java and Outside Java. The projections were made separately for Java and Outside Java, assuming no population interchange between these two areas because of migration.

1/ United Nations, op.cit., Annex I Model Life Tables, pp. 81-04. An increase of one level corresponds to an increase of 2.5 years in the expectation of life at birth of females and a slightly smaller increase in the expectation of life at birth of males. For the same level the expectation of life of females at birth is higher than that of the males by about 3 years in the range of life table levels now applicable to Indonesia.

2/ Chandrasekaran, op. cit.

(2) Base population. The base populations used for Java and Outside Java were of December 31, 1971. The populations as of this date were estimated using the 1971 census (September 24, 1971) populations, and a growth rate of about 2% per annum. As the census population used excluded about 860,000 persons (estimated Rural West Irian population 772,564, 67,725 homeless persons and 24,270 "erroneous persons"), the base population could be in defect by 7 per 1,000 persons. 1/ The age distribution as graduated by LEKNAS was adopted. The sex-age distributions of the base-populations are given in Table 15.

(3) Mortality assumptions. Analysis of the data of the Inter-censal Population Survey gave the estimate of adult mortality of females in Java as of level 12 (expectation of life at birth 47.5 years) and outside Java as of level 11.5 (expectation of life at birth 46.25 years). The usual practice has been to assume that childhood mortality levels and male adult mortality levels are reflected by the life tables appropriate for the females. Hence, although there was reason to believe that male expectation of life was lower than that expected on the basis of the female expectation of life both in Java and Outside Java, it was not felt necessary to make any adjustments on this account, until additional evidence to substantiate these findings is available.

In respect of future trends in mortality, the following two sets of assumptions were made:

Rapid decline in mortality

Java. The expectation of life of females was assumed to increase by 5 years during each 5-year period between 1971-76 and 1981-86 and by 2.5 years during each 5-year period between 1981-86 and 1996-2001.

Outside Java. The expectation of life of females was assumed to increase by 5 years during each 5-year period between 1971-76 and 1981-86, by 3.75 years between 1981-86 and 1986-91, and by 2.5 years during each 5-year period between 1986-91 and 1996-2001.

The trend in the male expectation of life was assumed to be given by the trend in the model life table applicable to the females. Under these assumptions the differential in the expectation of life of females between Java and Outside Java which existed in 1971-76 will cease to exist after 1986-1991. So will the differential among males.

An increase in expectation of life of 5 years during a five-year period assumed between 1971-76 and 1981-86 is on the high side. Such an

1/ No adjustment has also been made for undercount in the 1971 census estimated to be 2.5% in rural areas and 4.0% in urban areas or 2.8% in the total population, as the reliability of these estimates are not known.

**Table 15: SEX AND AGE DISTRIBUTIONS OF 1971 YEAR-END POPULATIONS
(000's)**

Age Group	Java		Outside Java	
	Male	Female	Male	Female
0-4	6,089.9	6,106.1	3,690.7	3,684.8
5-9	5,368.8	5,310.2	3,123.1	3,122.5
10-14	4,595.4	4,561.0	2,666.0	2,581.5
15-19	3,747.3	3,843.1	2,274.8	2,332.3
20-24	2,563.0	2,856.0	1,651.9	1,684.8
25-29	2,503.2	2,703.9	1,452.1	1,312.0
30-34	2,641.4	2,852.1	1,483.9	1,356.8
35-39	2,439.7	2,446.3	1,086.4	1,075.6
40-44	1,995.1	2,036.7	916.3	941.4
45-49	1,628.9	1,685.5	761.1	815.8
50-54	1,259.1	1,396.8	661.2	690.1
55-59	930.3	1,100.3	506.0	551.7
60-64	694.9	885.7	399.7	423.9
65+	900.4	1,236.8	591.1	726.3
TOTAL	<u>37,357.4</u>	<u>39,020.6</u>	<u>21,264.2</u>	<u>21,299.3</u>

Source: Central Bureau of Statistics.

increase was noted to have occurred between 1965-70 and 1970-75, although it should be recognized that health conditions in the sixties had deteriorated and a recovery took place only after 1968.

Moderate decline in mortality

Java. The expectation of life at birth of females was assumed to increase by 2.5 years during each 5-year period between 1971-76 and 1996-2001.

Outside Java. The expectation of life at birth of males was assumed to increase by 2.5 years during each 5-year period from 1971-76 to 1981-86, by 3.1 years during each 5-year period 1981-86 to 1991-96, and by 2.5 years between 1991-96 and 1996-2001.

The trend in the male expectation of life was assumed to be given by the trend in the model life table applicable to the females.

Under these assumptions, the differential in the expectation of life of females between Java and Outside Java which existed in 1971-76 would cease to exist after 1991-96. So would the differential among males.

The expectations of life for each quinquennial period 1971-76 to 1996-2001 implied by these assumptions are shown in Table 16.

(4) Fertility assumption. Only one set of assumption was made in respect of trends in fertility in Java and Outside Java, as follows:

Java. The total fertility rate was assumed to decline linearly by 30% between 1971 and 1986, and by 50% between 1971 and 2001. Specific fertility rates were also assumed to decline linearly between 1976 and 1986, and 1986 and 2001.

Outside Java. The total fertility rate was assumed to decline by 30% between 1971 and 2001. The specific fertility rates were assumed to decline linearly between 1976 and 2001.

The total fertility rate and specific fertility rates resulting from these assumptions for the key years are shown in Table 14. The decline in fertility assumed above is somewhat less than the national goal of reducing fertility by 50% by the end of the century.

(5) Migration. No migration between Java and Outside Java is assumed. The migration component can be introduced at a later stage.

(6) Sex ratio. Sex ratio at birth is assumed to be 105 male births to 100 female births.

The projections are presented in Tables 17(a) to 17(d).

Table 16: MORTALITY DECLINE ASSUMED IN MAKING POPULATION PROJECTIONS

		1971- 1976	1976- 1981	1981- 1986	1986- 1991	1991- 1996	1996- 2001
<u>Rapid decline</u>							
<u>Java</u>	Level ^{/1} Expectation of life at birth	12	14	16	17	18	19
	Females	47.5	52.5	57.5	60.0	62.5	65.0
	Males	44.62	49.47	54.15	56.47	58.85	61.23
<u>Outside Java</u>	Level ^{/1} Expectation of life at birth	11.5	13.5	15.5	17	18	19
	Females	46.25	51.25	56.25	60.0	62.5	65.0
	Males	43.37	48.29	50.65	56.47	58.85	61.23
<u>Moderate decline</u>							
<u>Java</u>	Level ^{/1} Expectation of life at birth	12	13	14	15	16	17
	Females	47.5	50.0	52.5	55.0	57.5	60.0
	Males	44.62	47.11	49.47	51.83	54.15	56.47
<u>Outside Java</u>	Level ^{/1} Expectation of life at birth	11.5	12.5	13.5	14.75	16	17
	Females	46.25	48.75	51.25	54.38	57.50	60.0
	Males	43.37	45.87	48.29	51.24	54.15	56.47

^{/1} "West" Model Life table: Annex I Methods of Estimating Basic Demographic Measures from Incomplete Data, Manual IV. Manuals of estimating population ST/SOA/Series A/42 United Nations, New York 1967.

Table 17(a): POPULATION PROJECTIONS FOR JAVA: RAPID DECLINE IN MORTALITY^{/1}

JAVA I		RAPID DECLINE MORTALITY		(POP IN THOUSANDS)				
		1971	1976	1981	1986	1991	1996	2001
5-TOT	TFR	4,750	4,253	3,780	3,360	2,987	2,655	
	GRR	2,317	2,075	1,844	1,639	1,457	1,295	
	NRR	1,622	1,574	1,507	1,383	1,267	1,158	
E(0)	FEMALES	47.50	52.50	57.50	60.00	62.50	65.00	
E(0)	MALES	44.52	49.56	54.14	56.47	58.84	61.23	
INF MORT	FEMALES	131.71	105.48	81.77	70.66	60.04	49.94	
INF MORT	MALES	155.37	124.53	98.57	86.21	74.30	62.87	
FEMALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		6106.1	5824.5	6154.4	6510.4	6656.7	6588.1	6381.9
5		5310.2	5722.6	5555.5	5958.6	6343.8	6523.7	6490.2
10		4561.0	5195.8	5629.2	5490.0	5900.4	6293.9	6483.9
15		3843.1	4460.2	5106.8	5558.5	5432.4	5849.9	6251.3
20		2856.0	3732.5	4357.3	5019.2	5478.1	5367.3	5793.5
25		2703.9	2758.0	3628.4	4266.1	4930.0	5396.9	5302.6
30		2552.1	2598.9	2671.0	3541.5	4176.8	4845.2	5120.8
35		2446.3	2727.6	2506.7	2597.7	3457.7	4094.6	4764.2
40		2036.7	2327.5	2618.8	2427.2	2525.5	3374.4	4010.9
45		1685.5	1925.3	2220.6	2519.5	2344.7	2449.2	3245.1
50		1396.8	1571.4	1813.6	2111.1	2406.2	2249.2	2359.7
55		1100.3	1272.0	1449.3	1691.4	1979.7	2268.8	2132.2
60		895.7	963.3	1132.3	1308.9	1538.6	1813.9	2093.6
65		485.6	729.2	810.4	970.6	1132.5	1343.8	1599.0
70		363.7	363.7	561.0	638.2	773.4	913.1	1096.3
75+		387.5	387.5	403.0	559.7	692.7	861.3	1055.8
TOT		39020.5	42560.0	46618.4	51168.7	55771.2	60233.7	64421.0
MALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		6089.9	5954.8	6330.2	6716.4	6875.8	6814.0	6609.6
5		5368.8	5698.6	5673.7	6112.5	6526.6	6720.2	6695.2
10		4595.4	5259.6	5609.3	5605.5	6049.5	6470.0	6672.4
15		3747.3	4500.4	5173.3	5536.7	5542.3	5990.9	6417.2
20		2563.0	3637.4	4393.5	5075.4	5444.7	5462.5	5917.6
25		2503.2	2470.4	3531.3	4292.1	4973.0	5350.1	5382.2
30		2641.4	2401.5	2389.8	3440.8	4196.4	4878.0	5264.2
35		2439.7	2516.2	2309.8	2317.8	3350.3	4101.5	4784.9
40		1993.1	2299.8	2398.7	2223.1	2241.0	3253.7	4000.2
45		1628.9	1854.7	2165.1	2282.1	2126.0	2153.9	3142.6
50		1259.1	1483.1	1712.9	2023.3	2145.1	2010.0	2047.9
55		930.3	1111.9	1331.2	1558.0	1852.6	1977.2	1864.7
60		694.9	784.1	955.2	1161.5	1370.1	1642.0	1766.3
65		378.4	545.5	630.1	782.3	960.5	1144.2	1384.8
70		267.5	267.5	396.7	468.9	589.1	732.0	862.5
75+		254.5	254.5	264.6	360.3	452.7	578.7	738.8
TOT		37357.4	41040.0	45265.4	49956.9	54695.8	59278.9	63571.1
GRAND TOTAL		76377.9	83600.0	91883.8	101125.6	110467.0	119512.7	127992.0
BIRTH RATE		35.6	33.0	30.7	28.2	25.3	22.4	
DEATH RATE		17.5	14.8	11.5	10.5	9.5	8.7	
POP INCREASE		18.1	18.9	19.2	17.7	15.7	13.7	

^{/1} Explained in the text.

Table 17(b): POPULATION PROJECTIONS FOR OUTSIDE JAVA: RAPID DECLINE IN MORTALITY /1

OUTSIDE JAVA 1		RAPID DECLINE MORTALITY (POP IN THOUSANDS)						
		1971	1976	1981	1986	1991	1996	2001
S-TOT=TF		6,045	5,682	5,341	5,021	4,720	4,436	
GRR		2,949	2,772	2,605	2,449	2,302	2,164	
NRR		2,007	2,054	2,082	2,059	1,995	1,929	
E(0)	FEMALES	46.25	51.25	56.25	60.00	62.50	65.00	
E(0)	MALES	43.32	48.34	52.98	56.47	58.84	61.23	
INF MORT	FEMALES	138.92	111.90	87.58	70.66	60.04	49.94	
INF MORT	MALES	163.51	131.98	104.97	86.21	74.30	62.87	
FEMALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		3684.8	3852.4	4424.5	5078.6	5691.2	6212.6	6704.6
5		3122.5	3437.9	3658.0	4268.4	4948.7	5577.6	6120.3
10		2581.5	3051.0	3377.2	3610.9	4226.7	4909.7	5543.5
15		2332.3	2521.0	2995.0	3331.1	3573.0	4190.5	4876.5
20		1654.8	2261.3	2459.5	2939.4	3282.9	3530.2	4150.1
25		1312.0	1623.7	2195.0	2403.9	2887.1	3234.2	3487.6
30		1356.8	1258.2	1569.8	2138.4	2354.7	2837.5	3188.6
35		1075.6	1294.4	1211.2	1523.7	2087.8	2307.4	2790.1
40		941.4	1020.7	1240.1	1170.4	1481.3	2037.5	2260.1
45		815.8	887.5	971.7	1190.6	1436.6	1836.6	1983.6
50		690.1	758.3	834.1	921.7	1137.1	1084.5	1384.1
55		551.7	626.1	697.3	775.7	864.3	1072.2	1028.1
60		423.9	490.6	555.3	627.5	705.6	791.9	989.3
65		288.3	346.7	402.4	473.7	542.9	616.3	698.1
70		214.1	214.1	265.2	315.0	377.5	437.8	502.8
75+		223.9	223.9	233.5	280.7	343.9	423.0	510.9
TOT		21299.5	23857.9	27089.8	31040.7	35635.3	40699.5	46258.2
MALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		3690.7	3933.7	4546.5	5235.0	5878.5	6425.6	6985.3
5		3123.1	3438.2	3732.5	4376.1	5087.1	5745.5	6313.6
10		2666.0	3055.9	3380.7	3684.4	4331.0	5043.0	5704.7
15		2274.8	2607.9	3002.8	3334.1	3642.8	4289.0	5001.8
20		1651.9	2204.6	2542.4	2942.4	3278.6	3590.4	4236.5
25		1452.1	1589.1	2136.6	2479.9	2883.0	3221.7	3537.6
30		1483.9	1389.9	1534.1	2078.1	2424.6	2827.9	3170.0
35		1086.4	1409.8	1333.7	1484.8	2023.5	2369.8	2774.0
40		916.3	1020.9	1340.4	1280.6	1435.7	1965.1	2311.3
45		761.1	848.8	958.3	1271.9	1224.7	1379.9	1898.0
50		661.2	690.2	781.4	892.9	1195.6	1157.8	1311.9
55		506.0	581.2	617.3	708.4	817.6	1101.9	1074.2
60		399.7	424.2	497.2	536.5	623.0	724.6	984.4
65		250.8	311.6	339.1	405.3	443.7	520.3	611.1
70		175.8	175.8	225.2	250.9	305.2	338.1	401.3
75+		164.4	164.4	171.3	211.3	249.8	306.2	357.9
TOT		21264.3	23846.4	27139.6	31172.6	35844.3	41006.9	46673.5
GRAND TOTAL		42563.8	47704.3	54229.4	62222.3	71479.5	81706.4	92931.7
BIRTH RATE		42.2	41.2	40.0	38.2	35.8	33.7	
DEATH RATE		19.4	15.6	12.5	10.4	9.1	7.9	
POP INCREASE		22.8	25.7	27.5	27.8	26.8	25.8	

/1 Explained in the text.

Table 17(c): POPULATION PROJECTIONS FOR JAVA: MODERATE DECLINE IN MORTALITY /1

JAVA 2		MODERATE DECLINE MORTALITY		(POP IN THOUSANDS)				
		1971	1976	1981	1986	1991	1996	2001
S=TOT=TF		4,750	4,253	3,780	3,360	2,987	2,655	
GRR		2,317	2,075	1,888	1,639	1,457	1,265	
NRR		1,622	1,516	1,402	1,294	1,191	1,093	
E(0)	FEMALES	47.50	50.00	52.50	55.00	57.50	60.00	
E(0)	MALES	44.52	47.11	49.56	51.83	54.14	56.47	
INF MORT	FEMALES	131.71	118.31	105.48	93.39	81.77	70.66	
INF MORT	MALES	155.37	139.42	124.53	111.36	98.57	86.21	
FEMALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		6106.1	5824.5	4025.1	6258.3	6372.0	6266.6	6010.2
5		5310.2	5722.6	5505.8	5746.8	6015.8	6169.2	6106.3
10		4561.0	5195.8	5613.9	5416.0	5666.6	5944.8	6109.0
15		3843.1	4460.2	5094.1	5517.7	5336.0	5595.4	5882.4
20		2856.0	3732.5	4345.6	4976.5	5407.2	5244.5	5514.4
25		2703.9	2758.0	3617.8	4224.5	4855.7	5294.1	5151.3
30		2852.1	2598.9	2661.9	3503.7	4107.7	4739.4	5185.7
35		2446.3	2727.6	2497.0	2567.5	3393.8	3995.1	4627.2
40		2036.7	2327.5	2607.8	2397.3	2475.7	3286.2	3864.0
45		1685.5	1925.3	2211.1	2488.0	2296.9	2381.9	3174.4
50		1396.8	1571.4	1805.0	2082.9	2354.6	2183.7	2274.7
55		1100.3	1272.0	1440.9	1664.7	1931.7	2195.9	2047.8
60		885.7	963.3	1123.8	1282.6	1492.5	1744.5	1997.5
65		485.6	729.2	802.6	945.4	1089.2	1279.4	1509.5
70		363.7	363.7	554.4	617.5	735.8	857.7	1019.4
75+		387.5	387.5	395.9	533.7	643.7	783.9	945.1
TOT		39020.5	42560.0	46302.7	50223.1	54174.9	57962.2	61438.8
MALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		6089.9	5954.8	6185.3	6437.0	6562.8	6464.9	6208.0
5		5369.8	5698.6	5626.9	5893.4	6175.7	6337.2	6282.2
10		4595.4	5259.6	5597.2	5538.8	5812.0	6101.5	6271.8
15		3747.3	4500.4	5162.9	5505.4	5457.7	5736.8	6032.6
20		2563.0	3637.4	4381.2	5040.3	5388.2	5354.4	5641.5
25		2503.2	2470.4	3518.8	4253.4	4908.8	5263.8	5246.3
30		2641.4	2401.5	2380.0	3404.1	4129.8	4783.0	5146.4
35		2439.7	2516.2	2299.0	2289.2	3288.0	4005.4	4657.2
40		1995.1	2299.8	2385.8	2191.5	2192.9	3164.6	3872.7
45		1628.9	1854.7	2152.3	2246.0	2074.1	2088.3	3026.4
50		1259.1	1483.1	1701.9	1987.8	2086.6	1938.3	1961.1
55		930.3	1111.9	1321.7	1527.6	1796.1	1897.9	1774.8
60		694.9	784.1	947.3	1135.4	1322.4	1567.0	1669.0
65		378.4	545.5	623.7	761.2	921.0	1083.1	1296.0
70		267.5	267.5	391.8	453.5	559.9	685.4	815.6
75+		254.5	254.5	260.1	344.1	421.6	527.9	662.2
TOT		37357.4	41040.0	44935.9	49008.7	53097.7	56997.5	60563.9
GRAND TOTAL		76377.9	83600.0	91238.6	99231.8	107272.5	114959.8	122002.7
BIRTH RATE		35.6	33.0	30.9	28.5	25.6	22.7	
DEATH RATE		17.5	15.5	14.1	12.9	11.8	10.8	
POP INCREASE		18.1	17.5	16.8	15.6	13.8	11.9	

/1 Explained in the text.

Table 17(d): POPULATION PROJECTIONS FOR OUTSIDE JAVA: MODERATE DECLINE IN MORTALITY^{/1}

OUTSIDE JAVA 2		MODERATE DECLINE MORTALITY (POP IN THOUSANDS)						
		1971	1976	1981	1986	1991	1996	2001
S-TOT=TF		6,045	5,667	5,341	5,021	4,720	4,436	
GDP		2,949	2,777	2,605	2,449	2,302	2,164	
M24		2,007	1,971	1,931	1,905	1,873	1,819	
E(0)	FEMALES	40,25	40,75	41,25	41,38	41,50	41,60	
E(0)	MALES	43,32	43,82	44,34	44,26	44,14	44,07	
INF M24	FEMALES	136,92	125,01	111,90	96,41	81,77	70,56	
INF M24	MALES	163,51	147,40	131,98	114,65	98,57	86,21	
FEMALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		3534.0	3452.4	3330.3	3171.6	3021.3	2885.1	2766.5
5		3122.5	3037.9	2926.0	2781.8	2643.8	2518.9	2406.0
10		2551.5	2451.0	2324.2	2194.0	2071.0	1958.7	1857.5
15		2332.3	2221.0	2097.5	1976.4	1867.2	1769.0	1682.2
20		1864.3	1761.3	1642.3	1528.5	1429.7	1344.1	1270.2
25		1312.0	1223.7	1137.7	1060.5	994.2	944.9	907.6
30		1356.8	1256.2	1163.9	1085.1	1021.4	973.2	936.1
35		1075.6	1004.4	940.1	885.5	840.6	804.0	775.5
40		941.4	1020.7	1234.5	1155.5	1080.1	1018.7	970.4
45		615.8	687.5	767.2	845.3	920.0	991.7	1059.3
50		500.1	555.2	609.0	669.0	725.0	781.4	828.4
55		551.7	626.1	702.9	763.0	818.6	876.1	925.0
60		423.9	480.5	550.7	614.5	682.9	753.3	820.5
65		286.3	340.7	398.1	461.0	528.6	598.4	670.8
70		214.1	261.1	304.5	357.8	409.9	469.9	537.8
75+		223.9	223.9	226.9	267.0	317.7	383.2	455.5
TOT		21299.5	23657.9	26885.8	30217.3	34480.0	39016.0	43951.2
MALES								
AGE		1971	1976	1981	1986	1991	1996	2001
0		3590.7	3433.7	3236.3	3006.0	2781.8	2571.9	2376.4
5		3123.1	3038.2	2926.0	2781.8	2643.8	2518.9	2406.0
10		2551.5	2451.0	2324.2	2194.0	2071.0	1958.7	1857.5
15		2274.8	2167.9	2042.2	1921.0	1807.2	1704.9	1613.3
20		1551.9	1444.6	1325.1	1212.0	1103.3	1000.5	908.7
25		1452.1	1349.1	1240.9	1138.0	1040.5	948.7	863.0
30		1443.9	1349.9	1257.7	1165.2	1078.3	996.7	925.9
35		1055.4	1009.0	967.3	926.0	886.1	847.5	810.9
40		916.3	1020.9	1332.9	1261.9	1202.6	1154.6	1117.9
45		761.1	843.8	922.3	1001.1	1080.7	1161.4	1253.3
50		661.2	690.2	725.9	767.7	815.6	865.6	917.6
55		506.0	581.2	652.3	719.6	790.6	865.6	943.6
60		399.7	424.2	492.5	563.6	639.6	720.9	807.3
65		250.6	311.6	335.2	393.6	423.9	491.1	570.6
70		175.8	175.8	222.1	242.2	288.8	315.5	359.6
75+		164.4	164.4	164.4	201.3	231.1	277.8	319.1
TOT		21254.3	23646.4	26914.4	30510.3	34648.4	39264.2	44279.6
GRAND TOTAL		42553.8	47304.3	53800.2	60927.6	69128.4	78280.3	88231.0
BIRTH RATE		42.2	41.3	40.3	38.7	36.4	34.1	
DEATH RATE		19.4	17.3	15.4	13.4	11.6	10.2	
POP INCREASE		22.8	24.0	24.9	25.3	24.9	23.9	

^{/1} Explained in the text.

(c) Implications of the Projections

(1) Population Growth. Under the assumption of rapid decline in mortality, the year-end population of Indonesia in 2001 will be 220.9 million, while with moderate decline in mortality, the population size at that time would be 210.2 million. Judged on the basis of the 1971 population, the average annual rate of growth of Indonesia's population during the next 30 year period would be 2.1% under the assumption of rapid decline of mortality and 1.9% under moderate decline of mortality.

In spite of the rapid decline of fertility assumed in these projections, it is only in Java and under the assumption of moderate mortality decline, that the rate of natural increase (no migration to outside Java is assumed) will continually decline from 1971-76 to 1996-2001. In case mortality declines rapidly in Java, the rate of natural increase will increase slightly before taking a downward trend. The rate of natural increase in Java will decrease from 1.8% per annum in 1971-76 to 1.2% per annum during 1996-2001 under the assumption of moderate decline in mortality. With rapid decline in mortality the rate will decrease from the 1.8% level to 1.4% in 1996-2001. In Outside Java, the rate of natural increase will tend to increase and then decline. However, the natural increase rate during 1996-2001 will be higher than the rate during 1971-76, showing that even the somewhat rapid decline in fertility assumed for Outside Java will not be able to offset the acceleration which mortality decline will contribute to the rate of population growth.

With the decline of fertility and mortality as envisaged in the projections (and assuming no migration between Java and Outside Java), Java's population size would be 45% to 50% higher in 2001 as compared with the 1976 population size. For Outside Java the increase will be about 90%.

The chances are that natural increase alone will make the population sizes of Java and Outside Java more similar as years roll by. With an effort to increase the tempo of net migration between Java and Outside Java, these areas might have equal populations by the end of the century.

It is very unlikely that the average rate of growth of Indonesia's population will fall below 2% per annum and it is necessary that long-term economic plans be developed on that basis.

(2) Age distribution. The age structure of Indonesia's population is likely to change drastically in the next 25 years. In 1976, 41% of the population was in the age group 0-14; in 2001, 35% of the population would be in that age group. The number of persons in the 0-14 group will increase by 41% between 1976 and 2001, while the total population will increase by 68%. This will result in a relative lessening of the demands from children and youth in the whole of Indonesia. The decline of the population in the younger age group will be more marked in Java than Outside Java. Towards the end of the century, 31% of the population of Java would be found in the 0-14 age group; Outside Java, the proportion would be 40%.

The anticipated diminution in the age group 0-14 will lead to an increase in the proportion of persons in the working age group 15-64. ^{1/} For Indonesia the proportion will increase from 57.0% of the total population in 1976 to 62.8% of the total population in 2001. During the period 1976 to 2001, the number of persons in the 15-64 age group will increase at 2.5% per annum compared to about 2.0% per annum growth for the total population.

In spite of a higher proportion of persons being in the 15-64 age group in Java (58.2% in 1976 and 66.3% in 2001), than Outside Java (54.8% in 1976 and 57.8% in 2001), the number of persons in that age group will increase less rapidly in Java than Outside Java. In the absence of migration between the two areas, the average annual rate of increase between 1976-2001 is likely to be 2.3% for Java and 2.9% for Outside Java. With the expected trend in migration, this differential will become exaggerated.

The dependency ratio, the ratio of the number of persons in the 0-14 and 65 and over age groups to the number of persons in the 15-64 age group, in Indonesia will diminish from 0.75 in 1976 to 0.59 in 2001.

(3) Stable population. The net reproduction rate during 1996-2001 for Java will be 1.16 on the basis of rapid decline in mortality and 1.09 on the basis of moderate decline in mortality. Comparative figures for Outside Java are 1.93 and 1.82 respectively. As such even by 2001 the fertility and mortality conditions necessary for attaining stability in population growth are not expected to be reached in the whole of Indonesia. There is the possibility that such conditions would be reached in Java shortly after the turn of the century, but even then, stable population size of about 360 million for the whole of Indonesia is likely to be reached well beyond the year 2060.

(d) Present Projections in the Context of Some Others Recently Made

It is worthwhile examining the projections presented here with those made by Iskander and Leknas to which reference has already been made. Iskander's projections have used lower expectations of life at birth (level 11.5; expectation of life at birth of females 46.25 years) during 1971-76 than either the Leknas projections or the ones presented in this Report. Leknas' projections used level 12.0 for 1970-75 (expectation of life at birth for females 47.5 years) while the ones given in the Report assume a level slightly below level 12 for 1971-76. The "moderate mortality decline" made in our projections is practically the same as the trend assumed by Iskander and Leknas, while the "rapid mortality decline" assumes a much faster decline compared to the other projections.

With respect to fertility level during the early seventies, Iskander's projections assumed a much higher level than our projections,

^{1/} The lower age limit is sometimes placed at 10 years.

while Leknas' "low fertility" projection assumed a slightly higher level. The decline in fertility assumed by Leknas' "low fertility" projection is slightly faster than that assumed by us.

The "moderate mortality decline" projection given in this report is very close to Leknas' "low fertility" projection. The "low fertility" projection gave an estimate of 209.5 million for Indonesia's population at year end 2000. The "moderate mortality decline" projection gave an estimate of 210.2 for year end 2001. Taking into account that Leknas' projections used the total count of 1971 census including the estimate for rural West Irian and that the base population used by Leknas was 0.9 million higher than that used in our projections, the two estimates of population around 2,000 are very close.

This is fortuitous as the "moderate mortality decline" projection is more realistic than the "rapid mortality decline" projection, and, therefore, the Leknas' "low fertility" projection can be used to supplement our own projections. More particularly, as no assumptions have been made on migration or urbanization the Leknas' "low fertility" projections can be used to study the effects of these factors on regional population growth.

SOME SOCIO-ECONOMIC CHARACTERISTICS OF LOW-INCOME GROUPS

This annex is concerned with a cross-sectional examination of population groups at different levels of consumption. So far as data permit, we shall attempt in the first section to identify poor groups according to a few socio-economic characteristics, namely household size, size of landholding and level of educational attainment. A further dimension of the characterization is given in the second section by a comparison of living standards and housing conditions of rich and poor groups.

Some information is available from the 1976 Intercensal Population Survey which gives the distribution of households at different per capita consumption expenditure levels by various socio-economic and housing characteristics of the households. This will be used here to show up differences between population groups at different consumption levels. 1/

The consumption expenditure information in the 1976 Intercensal Population Survey was not of critical importance to the survey, as can be seen by the fact that it was obtained through only one question which, moreover, left it unclear whether or not own consumption should be included. 2/ Consequently, the quality of the consumption information is not good and, given the manner in which it was obtained, an underestimate can be expected. The degree of underestimation is likely to vary by consumption level. Nevertheless, the per capita consumption expenditure classes represent a reasonable ordering of the population by consumption level.

1. Some Socio-economic Characteristics of the Population at Different Levels of Consumption

Table 1 gives a distribution of households by household size and average monthly consumption expenditure per capita for urban and rural areas separately. From this we see that the poorer the households, the larger the

1/ For a general description of the 1976 Intercensal Population Survey concerning its objectives, sampling design and methodology see 1976 Intercensal Population Survey, Technical Report Series, Monograph No. 1, Organization and Methods, Biro Pusat Statistik, Jakarta, 1976.

2/ The question asked was simply "What is the average monthly expenditure of this household?". The answer was to be in thousands of rupiah.

Table 1

Distribution of Households by Number of Household Members and Average Monthly Expenditure per Capita, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban					Rural				
	Number of Members				Average Household Size	Number of Members				Average Household Size
	1	2-3	4-5	6 or more		1	2-3	4-5	6 or more	
0 - 999	.00	5.97	18.20	75.83	7.35	.27	10.13	32.10	57.50	6.02
1,000 - 1,999	.24	9.00	27.62	63.14	6.69	.54	13.01	37.70	48.75	5.71
2,000 - 2,999	1.15	15.60	25.95	57.29	6.08	1.85	24.74	31.31	42.11	5.12
3,000 - 3,999	3.04	22.38	37.02	37.57	5.33	6.77	33.03	36.49	23.71	4.28
4,000 - 4,999	3.77	30.32	24.48	41.42	5.19	9.71	42.17	27.06	21.05	3.89
5,000 - 7,499	7.10	31.91	24.92	36.06	4.84	14.16	47.98	20.56	17.30	3.56
7,500 - 9,999	7.50	38.99	24.36	29.15	4.31	12.92	55.40	20.53	11.15	2.97
10,000 - 14,999	13.50	33.61	24.06	28.82	4.26	23.80	50.89	15.07	10.24	2.71
15,000 or more	29.12	30.37	20.85	19.65	3.52	30.78	36.62	23.62	8.98	3.10

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 14.

average household size. ^{1/} To the extent that this more than reflects the fact that larger households may be overrepresented in the poor groups since dividing household consumption by the number of household members does not take into account the composition of the household and the fact that larger households typically have a larger proportion of children, nor does it allow for economies of scale in consumption, the result draws attention to the difficulties of larger households in meeting their consumption requirements. Although larger households tend to have a larger number of members in the labor force, the fact that they are more likely to be found in the lower consumption groups shows that the increase in the number of working members, and hence in household income, in large households is not sufficient in keeping up the consumption level of the household as a whole. In the lowest consumption per capita class of less than Rp 1,000 per month, 76% of households in urban areas and 58% of those in rural areas have six or more members. This is in contrast with the highest consumption group in which only 20% and 9% respectively are in large households with six or more members. Correspondingly, higher per capita consumption households are much more likely to be single-person households, whereas the two lowest consumption classes hardly contain any single-person households at all.

^{1/} The average household size of households with ten or more members is not given in the 1976 Intercensal Population Survey tabulations. This was calculated for urban and rural areas separately, using information from the 1971 Population Census.

- (i) From the Sensus Penduduk 1971, Seri E, we know the total population for urban and rural areas of Indonesia.
- (ii) The Sensus Penduduk 1971, Seri F, Keadaan Tempat Tinggal, gives a distribution of households by household size for both private and special households, for urban and rural areas. This is used to calculate the total number of people in all households with up to nine persons in each of the two areas.
- (iii) The total number of people in households with ten or more members can be obtained as a residual. The average household size for this size class is obtained by dividing by the number of households with ten or more members.

	<u>Urban</u>	<u>Rural</u>
Total Population	20,465,377	97,902,473
Population in all households sizes 1 to 9	16,942,532	91,339,142
Population in all households sizes 10+	3,522,845	6,563,331
Number of all households sizes 10+	303,125	613,514
Average size for all households size 10+	11.62	10.70

Source: Sensus Penduduk 1971, Seri E and Seri F,
Biro Pusat Statistik, Jakarta.

For households with agricultural incomes, there is a presumption that the amount of land which they are able to cultivate is of substantial importance to their income and consumption levels. Even though land varies in terms of its quality, and even though households do not necessarily rely solely on their incomes from agriculture, one might expect to find on average a positive relationship between the size of landholding operated by the households and consumption levels.

Such a relationship is discernible in Table 2 which gives the distribution of agricultural households in rural areas by the area of land cultivated and per capita consumption expenditure. Unfortunately, agricultural households here include not only those primarily engaged in agriculture, but also households with some income from agricultural sources. Nevertheless, with the exception of households with per capita consumption above Rp 10,000 per month, the lower consumption classes do contain a larger proportion of households with small areas of land cultivated, whereas successively higher consumption households are more likely to be those with larger areas of cultivated land. For example, 56% of households in the lowest consumption class of under Rp 1,000 per capita operate under .3 hectare of land, whereas only 25% of households in the Rp 7,500-9,999 class have so little land. Whereas 21% of households in the lowest consumption class have one hectare of land or more to cultivate, 52% of those in the Rp 7,500-9,999 class do so.

The result can be seen another way by calculating the average area of land cultivated by per capita consumption expenditure class. ^{1/} Again with the exception of the top two classes, there is a positive relationship between the consumption expenditure per capita level and the area of land cultivated. For households in the lowest consumption class, the average area of land cultivated is .64 hectare. This increases to 1.41 hectare in the Rp 7,500-9,999 class.

^{1/} The average size of holding for each size class is not available in the tabulations from the 1976 Intercensal Population Survey. This presents a problem, especially for the open-ended class which refers to holdings of five hectares or more. The Sensus Pertanian, 1973 gives the number and area of farms by a fine breakdown for size of holding. These were used to calculate the average size of farm for the size classes given in the 1976 Intercensal Population Survey tabulations. The results are given below.

Average Size of Farm, Indonesia, 1973

<u>Size Class</u> (ha)	<u>Number of Farms</u>	<u>Farm Area</u> (ha)	<u>Average Size of Farm</u> (ha)
< 0.30	4,105,388	737,036	.1795
0.30-0.49	2,455,370	943,265	.3842
0.50-0.99	3,554,297	2,423,242	.6818
1.00-5.00	3,951,119	7,159,161	1.8119
> 5.00	307,368	2,905,488	9.4528

Source: Sensus Pertanian 1973, Vol. 1, Table 2, Biro Pusat Statistik, Jakarta.

/a
Table 2: DISTRIBUTION OF AGRICULTURAL HOUSEHOLDS BY AREA OF LAND CULTIVATED AND AVERAGE MONTHLY EXPENDITURE PER CAPITA, RURAL AREAS, INDONESIA, 1976

Average Monthly Expenditure per Capita (Rp.)	Area of Land Cultivated (ha)					Average (ha)
	0.0-0.29	0.30-0.49	0.50-0.99	1.00-5.00	> 5.00	
	----- % -----					
0 - 999	55.5	10.1	13.9	20.0	.6	.64
1,000 - 1,999	46.1	9.3	21.3	22.6	.7	.72
2,000 - 2,999	42.6	8.4	21.8	26.3	.8	.81
3,000 - 3,999	38.4	5.9	23.4	31.1	1.3	.93
4,000 - 4,999	32.6	5.5	27.8	32.5	1.6	1.00
5,000 - 7,499	30.9	4.1	23.2	39.9	1.9	1.13
7,500 - 9,999	24.9	4.7	18.5	48.1	3.8	1.41
10,000 -14,999	28.8	1.2	20.2	48.9	.8	1.15
15,000 or more	42.4	.7	20.1	30.0	6.8	1.40
Total	40.9	7.3	22.4	28.3	1.1	0.87
	----- % -----					
0 - 999	2.6	2.6	1.2	1.4	1.0	1.9
1,000 - 1,999	26.6	29.5	22.4	18.8	14.3	23.6
2,000 - 2,999	36.1	39.1	32.7	32.3	27.1	34.6
3,000 - 3,999	21.7	18.3	24.0	25.3	27.2	23.0
4,000 - 4,999	6.2	5.7	9.6	8.9	11.3	7.7
5,000 - 7,499	5.3	3.9	7.3	9.9	12.4	7.0
7,500 - 9,999	.8	.8	1.1	2.2	4.6	1.3
10,000 -14,999	.4	.1	.5	.9	.4	.5
15,000 or more	.3	-	.3	.3	1.7	.3
Total	100.0	100.0	100.0	100.0	100.0	100.00

/a This includes all households with some agricultural income.

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 9.

Of greater significance, perhaps, than the existence of this relationship is how indecisive the amount of land cultivated appears to be for the economic position of the bulk of agricultural households. The dispersions of agricultural households by per capita consumption level for each of the cultivated area size classes are both wide and quite similar in character. Almost exactly 58% of the households in each of the area size classes under 5 hectares report consumption levels between Rp 2,000 and Rp 4,000 per month and, even for households cultivating more than 5 hectares, 54% report per capita consumption in the same range. This result is not surprising, given that the simple measure of size of area cultivated ignores the wide variations in land quality, types of crops, climatic conditions, irrigation practices and so on. But it does provide further evidence of the extent to which the well-being of the rural households in Indonesia has become less connected with the size of individual landholdings and more dependent on access to off-farm employment opportunities in both agricultural and non-agricultural labor markets and the terms upon which such opportunities are offered.

It is a fair presumption that the ability to take advantage of changing economic opportunities, whether through the exploitation of improved agricultural techniques or success in achieving higher earnings in non-agricultural sectors, may be importantly dependent on the level of education. On the other hand, the ability to finance, and the demand for, education are also likely to be strongly related to the level of household income. The positive relationship between education and the economic position of households is evident in the distribution of households by average per capita consumption expenditure and the educational level of the household heads which is given in Table 3. While there is a marked difference in the educational attainment of household heads in urban and rural areas, there is a clear positive relationship between the level of educational attainment of the household head and the consumption level of the household in both areas, with the exception of rural households with heads having no schooling whose average consumption level is higher than that of households headed by individuals with some elementary education. 1/

For the same level of educational attainment of the household head, rural households have a lower consumption level than urban ones and the differential in consumption levels between the lowest and highest educational classes is substantially greater in urban than in rural areas. In large part these patterns may simply reflect the disparities in the level and distribution of urban and rural incomes and educational facilities. But to the extent that they also result from the differential importance of educational qualifications to earnings levels in the sort of economic activities characteristic of urban areas, the level and distribution of access to formal education can be expected to become an increasingly important factor determining the distribution of income.

1/ The explanation for this exception could be connected with the age distribution of different groups. Because of the expansion of rural educational opportunities it is possible that the group of household heads without any schooling have a higher proportion of older, more experienced individuals whose families are also older and able to contribute more to household income.

Table 3 : DISTRIBUTION OF HOUSEHOLDS AND AVERAGE MONTHLY CONSUMPTION EXPENDITURE PER CAPITA
BY EDUCATIONAL ATTAINMENT OF THE HOUSEHOLD HEAD, INDONESIA, 1976

Level of Educational Attainment of Household Head	Urban		Rural	
	%	Average Consumption per Capita (Rp.)	%	Average Consumption per Capita (Rp.)
Never attended school	20.2	3,472	43.4	3,109
Has not finished elementary school	27.5	3,608	37.2	2,745
Finished elementary school	18.8	4,053	13.1	2,950
Has not finished junior high school	4.9	4,389	1.7	3,203
Finished junior high school	10.5	4,702	2.2	3,571
Has not finished senior high school	2.6	5,081	.4	3,496
Finished senior high school	9.2	5,966	1.6	4,153
Has not finished university	2.9	8,188	.2	5,024
Finished university	3.4	10,235	.2	5,147

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures,
Biro Pusat Statistik, September 1977, Table 13.

We conclude that poor households can be characterized by larger household sizes, smaller areas of land cultivated and less educated heads of household.

2. A Comparison of Housing Conditions of the Population at Different Levels of Consumption

In this section we use information from the 1976 Intercensal Population Survey with the objective of revealing some differences in the housing conditions of people at different consumption levels.

Table 4 gives a distribution of households by per capita consumption expenditure class and the material used for the walls, whether brick, wood, bamboo or some other material. In urban areas, the division is roughly one-third between each of the three materials listed, while in rural areas 56% of all houses use bamboo for their walls, 29% use wood and only 14% use brick. The proportion of houses using brick goes up with the level of consumption, from 17% in the lowest class to 70% in the highest class in urban areas, and from 6% to 22% in rural areas. In rural areas, the proportion using wood also goes up with the level of consumption, from 16% in the lowest class to 40% in the highest. Bamboo is an inferior material in both urban and rural areas; the proportion of houses using bamboo for their walls decreases with the consumption level, from 51% to 13% in urban areas and from 67% to 32% in rural areas.

In Table 5 we give a distribution of households by per capita consumption expenditure class and the material used for the floor. In urban areas the most common material is cement which is used by 32% of the houses. Earth serves as the floor for 25% of the houses, tiles for 20%, wood for 17% and bamboo for 4%. In rural areas, however, earth is used as the floor in 52% of all houses, wood, bamboo and cement for 19%, 14% and 12%, while tiled floors are very rare. In urban areas the proportion of households using tiles for their floors goes up with the consumption level, while the proportions using bamboo and especially earth go down with consumption. In rural areas, tiles, cement and wood appear to be what the well-to-do use for their floors; the proportions of households using them go up with the level of consumption. Earth is what the poor have to use. In the lower consumption groups, over two-thirds of the houses have earth floors, compared with 21% in the top consumption group.

Table 6 gives a distribution of households by consumption class and the source of lighting. Again there is a striking difference between urban and rural areas taken as a whole. Whereas 31% of urban houses have electricity, only 2% of rural houses do. The majority of houses in rural areas, some 84%, rely on oil lamps, compared with 46% of those in urban areas. Pump lamps are more common in urban areas.

The proportion of houses with electricity goes up directly with the consumption level of the household in both urban and rural areas. In rural areas this is also true for pump lamps. As would be expected, the

Table 4

Distribution of Households by Average Monthly Expenditure per Capita and Material for Wall, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban					Rural				
	Brick	Wood	Bamboo	Other + Not Stated	Total	Brick	Wood	Bamboo	Other + Not Stated	Total
0 - 999	17.2	29.3	50.5	3.0	100.0	5.9	15.7	67.0	11.4	100.0
1,000 - 1,999	23.8	28.1	46.4	1.7	100.0	12.7	21.4	63.7	2.3	100.0
2,000 - 2,999	26.1	31.6	40.4	1.9	100.0	12.5	27.5	58.4	1.6	100.0
3,000 - 3,999	30.5	32.9	34.9	1.7	100.0	15.6	29.6	53.2	1.5	100.0
4,000 - 4,999	37.0	30.6	29.9	2.5	100.0	13.9	36.8	47.5	1.8	100.0
5,000 - 7,499	42.9	33.0	22.5	1.7	100.0	16.2	44.2	37.7	1.9	100.0
7,500 - 9,999	52.8	25.3	20.3	1.6	100.0	17.8	46.4	34.4	1.3	100.0
10,000 -14,999	65.3	19.9	13.3	1.6	100.0	18.1	49.8	31.3	.8	100.0
15,000 or more	70.2	14.9	12.5	2.4	100.0	22.1	40.1	32.3	5.5	100.0
Total	35.1	30.7	32.3	1.9	100.0	13.7	28.9	55.5	2.0	100.0

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 3.

Table 5

Distribution of Households by Average Monthly Expenditure per Capita and Material for Floor, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban							Rural						
	<u>Tile</u>	<u>Cement</u>	<u>Wood</u>	<u>Bamboo</u>	<u>Earth</u>	<u>Other + Not Stated</u>	<u>Total</u>	<u>Tile</u>	<u>Cement</u>	<u>Wood</u>	<u>Bamboo</u>	<u>Earth</u>	<u>Other + Not Stated</u>	<u>Total</u>
0 - 999	3.7	25.4	14.7	6.4	47.6	2.3	100.0	.2	5.2	9.7	13.3	68.8	2.9	100.0
1,000 - 1,999	6.5	28.6	14.5	7.0	41.4	1.9	100.0	.5	9.8	11.5	11.4	65.3	1.4	100.0
2,000 - 2,999	10.1	31.8	18.1	6.1	32.4	1.5	100.0	.9	11.1	16.9	14.6	55.3	1.2	100.0
3,000 - 3,999	14.4	35.7	17.6	4.7	26.4	1.1	100.0	1.6	13.4	21.4	15.9	46.3	1.3	100.0
4,000 - 4,999	22.0	34.5	17.5	3.5	21.1	1.4	100.0	2.0	14.9	28.2	15.5	38.5	.9	100.0
5,000 - 7,499	30.1	32.6	16.9	2.6	16.9	.9	100.0	3.9	16.6	33.8	13.4	31.4	.9	100.0
7,500 - 9,999	41.1	29.7	13.6	1.4	13.3	1.0	100.0	5.1	22.0	30.1	16.2	25.2	1.3	100.0
10,000 - 14,999	54.3	24.9	11.2	.9	7.9	.8	100.0	7.4	20.3	29.9	17.6	24.4	.4	100.0
15,000 or more	57.9	24.9	7.7	1.2	6.8	1.5	100.0	13.7	13.6	35.5	15.1	20.6	1.5	100.0
Total	20.3	32.2	16.6	4.3	25.2	1.3	100.0	1.4	12.2	19.1	14.2	51.8	1.3	100.0

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 4.

Table 6

Distribution of Households by Average Monthly Expenditure per Capita and Source of Lighting, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban					Rural				
	Electricity	Pump Lamp	Oil Lamp	Other + Not Stated	Total	Electricity	Pump Lamp	Oil Lamp	Other + Not Stated	Total
0 - 999	16.2	12.2	70.6	1.0	100.0	.1	5.8	92.3	1.8	100.0
1,000 - 1,999	15.4	16.9	66.4	1.3	100.0	.8	8.4	89.4	1.4	100.0
2,000 - 2,999	21.0	20.3	56.9	1.7	100.0	1.2	11.8	85.8	1.2	100.0
3,000 - 3,999	27.9	21.5	48.9	1.7	100.0	2.0	14.7	82.5	.8	100.0
4,000 - 4,999	33.4	20.7	44.3	1.6	100.0	2.4	16.5	80.4	.6	100.0
5,000 - 7,499	39.2	25.1	33.9	1.8	100.0	4.9	21.6	72.9	.6	100.0
7,500 - 9,999	49.1	18.4	29.0	3.4	100.0	4.9	28.2	66.3	.6	100.0
10,000 - 14,999	61.1	15.6	20.3	3.0	100.0	10.1	24.5	62.2	3.2	100.0
15,000 or more	69.2	10.5	17.9	2.3	100.0	10.5	17.8	69.0	2.7	100.0
Total	31.0	20.7	46.4	1.9	100.0	1.8	13.0	84.1	1.1	100.0

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 5.

proportion using oil lamps declines with the consumption level of the household, from 71% to 18% in urban areas, and from 92% to 69% in rural areas, as we move from the lowest to the highest consumption class.

With respect to sources of water, Tables 7 and 8 give a distribution of households by consumption expenditure class and the source of drinking water, for urban and rural households respectively. The breakdown is first of all on the basis of whether the water source is inside or outside the yard, and within each of these two alternatives, whether the water comes from a piped system or is obtained using a pump or from a well. Roughly half the urban households have the source of their drinking water inside the yard, while only 27% of rural households do. Better-off households are more likely to have their source of drinking water inside the yard than poor ones. Piped water reaches 12% of urban households inside their yards and 16% outside, while the proportion of rural households served by piped water is under 2% altogether. Over two-thirds of rural households have their source of drinking water outside their yards and not classifiable as piped, pumped or taken from a well. As would be expected, the proportion of houses served by piped or pumped water increases with the consumption level. The proportion of households obtaining their drinking water from wells goes down with the consumption level in urban areas, but goes up with consumption in rural areas. In rural areas, even in the highest consumption class the proportion with the source of drinking water outside the yard is as high as 57%. The rural population is thus seen to be rather poorly served in terms of their supply of drinking water.

Table 9, which gives a distribution of households, both in urban and in rural locations, by per capita consumption expenditure class and whether their source of bathing and washing water is inside or outside their yard, shows a similar pattern. In urban areas, 56% of households have their bathing water source inside the yard, but in rural areas only 26% of households do. As in the case of drinking water, poor households in both urban and rural areas are less likely to have their source of water for use in bathing and washing located inside their yards.

Thus poor households are more likely to use bamboo and, in rural areas, wood for their walls and less likely to use brick; they are more likely to have earth, less likely to have tiles and, in rural areas, less likely to have cement or wood for their floors; they are less likely to be served by electricity, more likely to use oil lamps, and, in rural areas, less likely to use pump lamps; they are less likely to have their sources of drinking water, and of bathing and washing water, inside their yards; and they are less likely to have access to piped water as a source of drinking water.

Table 7

Distribution of Households by Average Monthly Expenditure per Capita and Location and Source of Drinking Water, Urban Areas, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Inside the Yard					Outside the Yard				
	Piped Water	Pump	Well	Others + Not Stated	Total	Piped Water	Pump	Well	Others + Not Stated	Total
0 - 999	3.2	2.4	19.0	11.7	36.3	15.2	0.0	2.5	46.1	63.7
1,000 - 1,999	4.1	1.7	23.6	11.9	41.3	16.5	1.0	1.4	39.8	58.7
2,000 - 2,999	5.2	2.3	25.5	11.6	44.6	14.0	1.0	1.8	38.6	55.4
3,000 - 3,999	8.2	3.0	22.9	12.2	46.2	16.5	1.1	1.6	34.6	53.8
4,000 - 4,999	11.3	5.8	20.3	12.1	49.6	18.8	.7	1.7	29.2	50.4
5,000 - 7,499	16.7	7.3	22.1	10.7	56.8	17.4	.7	1.7	23.5	43.2
7,500 - 9,999	25.4	8.6	15.4	9.7	59.1	19.4	.8	1.0	19.7	40.9
10,000 - 14,999	33.8	12.8	12.4	8.2	67.2	18.8	.3	.5	13.2	32.8
15,000 or more	39.0	17.4	10.7	7.7	74.8	12.7	.7	.1	11.7	25.2
Total	11.6	4.8	22.0	11.3	49.8	16.4	.9	1.6	31.4	50.2

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 6.

Table 8

Distribution of Households by Average Monthly Expenditure per Capita and Location and Source of Drinking Water, Rural Areas, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Inside the Yard					Outside the Yard				
	Piped Water	Pump	Well	Other + Not Stated	Total	Piped Water	Pump	Well	Other + Not Stated	Total
0 - 999	0.0	0.0	14.6	5.5	20.0	.4	.7	.1	78.8	80.0
1,000 - 1,999	.1	.0	21.5	4.5	26.1	.5	.4	1.4	71.6	73.9
2,000 - 2,999	.1	.1	21.8	4.8	26.8	1.6	.4	1.9	69.2	73.2
3,000 - 3,999	.2	.3	21.7	5.1	27.3	1.4	.5	2.4	68.4	72.7
4,000 - 4,999	.2	.3	20.2	5.8	26.5	1.3	.7	2.5	69.0	73.5
5,000 - 7,499	.3	.5	24.9	5.4	31.0	2.1	.7	2.9	63.3	69.0
7,500 - 9,999	.1	1.7	24.6	5.1	31.4	2.2	1.9	3.0	61.4	68.6
10,000 - 14,999	2.5	0.0	26.1	6.3	34.9	2.1	0.0	1.8	61.1	65.1
15,000 or more	1.8	1.8	21.1	11.6	36.3	.3	2.0	4.7	56.7	63.7
Total	.2	.2	21.7	5.0	27.1	1.3	.5	2.0	69.1	72.9

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 6.

Table 9

Distribution of Households by Average Monthly Expenditure per Capita and Location of
Bathing/Washing Water, Indonesia, 1976

Average Monthly Expenditure per Capita (Rp.)	Urban				Rural			
	Inside the Yard	Outside the Yard	Other + Not Stated	Total	Inside the Yard	Outside the Yard	Other + Not Stated	Total
0 - 999	43.0	55.2	1.8	100.0	19.3	80.4	.3	100.0
1,000 - 1,999	45.2	54.6	.3	100.0	23.6	76.2	.1	100.0
2,000 - 2,999	49.1	50.7	.2	100.0	25.0	74.7	.3	100.0
3,000 - 3,999	51.5	48.3	.1	100.0	26.2	73.5	.3	100.0
4,000 - 4,999	57.8	41.9	.2	100.0	25.0	75.0	.0	100.0
5,000 - 7,499	64.8	35.0	.2	100.0	31.4	68.6	.0	100.0
7,500 - 9,999	69.3	30.7	.0	100.0	29.9	70.1	.0	100.0
10,000 - 14,999	79.7	20.1	.2	100.0	35.3	64.7	.0	100.0
15,000 or more	82.3	17.7	.0	100.0	33.0	67.0	.0	100.0
Total	56.2	43.6	.2	100.0	25.5	74.3	.2	100.0

Source: Survey Penduduk Antar Sensus 1976, Keterangan Ekonomi Rumah Tangga, Preliminary Figures, Biro Pusat Statistik, September 1977, Table 7.