

The population of South-East Asia (including Ceylon and China: Taiwan) 1950-1980.

United Nations.

New York, United Nations, Dept. of Economic and Social Affairs, 1958.

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Future Population Estimates by Sex and Age

REPORT III

**THE POPULATION OF SOUTH-EAST ASIA
(INCLUDING CEYLON AND CHINA : TAIWAN)
1950-1980**

UNITED NATIONS

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- No. 1. December 1951.
- No. 2. October 1952.
- No. 3. October 1953.
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- No. 5. July 1956.

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Future Population Estimates by Sex and Age

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**THE POPULATION OF SOUTH-EAST ASIA
INCLUDING CEYLON AND CHINA : TAIWAN)
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FOREWORD

This is the third of a series of reports dealing with future population estimates by sex and age. These reports are being prepared in response to requests of the Population Commission, made at its seventh session and reiterated at its eighth and ninth sessions. Previous reports, on the populations of Central America and South America, were published in 1954 and 1955, and a recent publication presents rough estimates of the future population of the world and its major regions.¹ Another report, dealing with future population estimates in other parts of Asia, is now in preparation.

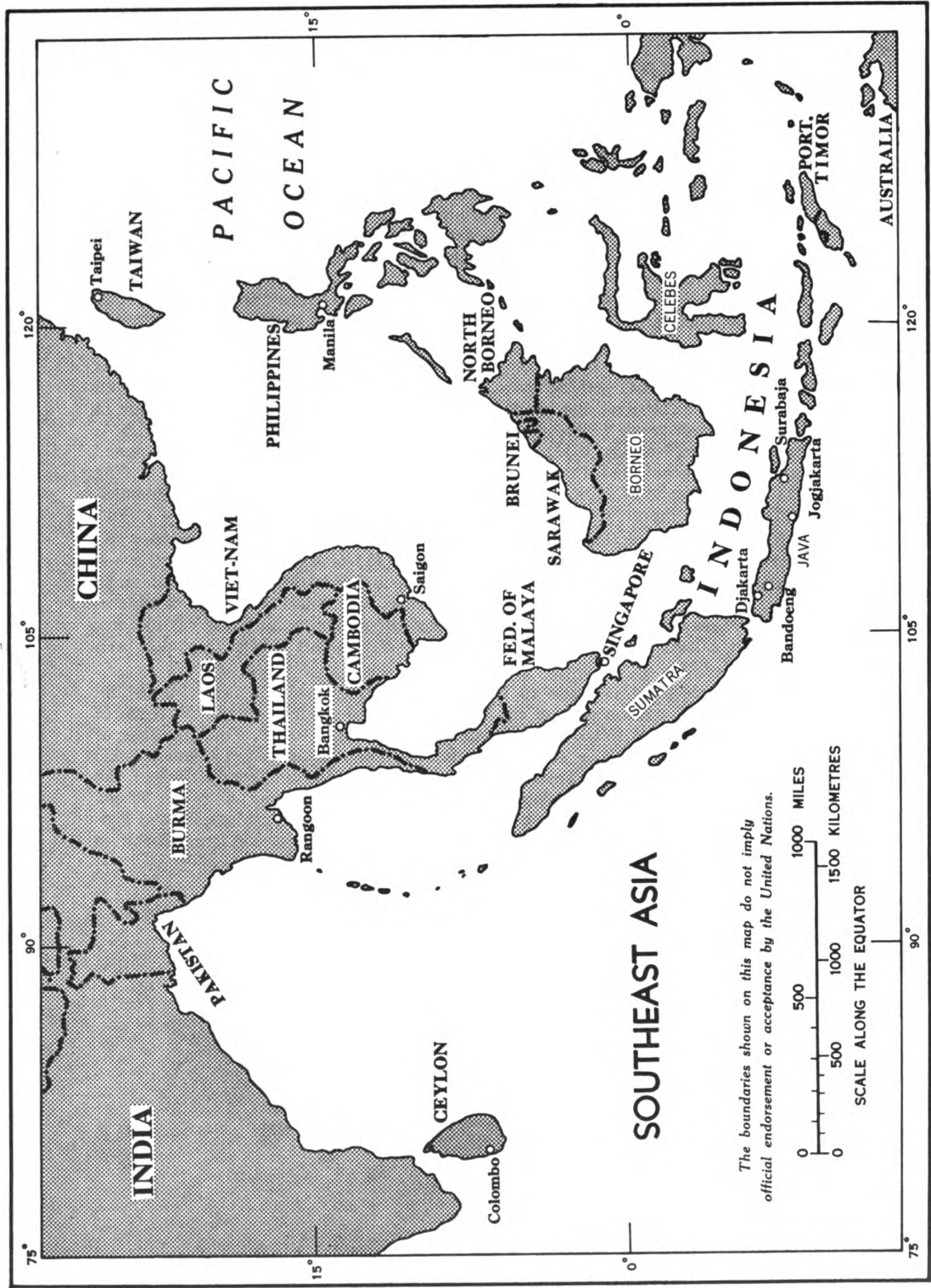
For the purpose of preparing comparable estimates of future population for various areas, including those with defective demographic statistics, the Population Branch of the United Nations has elaborated certain methods presented in detail in *Manual III. Methods for Population Projections by Sex and Age* (ST/SOA/Series A, No. 25, United Nations, 1956). Since that report, more experience has been gained in estimating problems for populations with scant statistical documentation, leading to the development of additional methods, to be presented in a forthcoming manual. In the present report, the specific methods used are briefly indicated.

Results of computations are here presented and discussed for all countries and territories of South-East Asia, defined as that region of Asia which lies to the east of India and to the south of China. A problem common to all countries of this area is the unequal distribution of population in space. Since, in this context, consideration of the demographic effects of internal migration acquires an added significance, a special calculating model, permitting inferences on this subject, has also been developed.

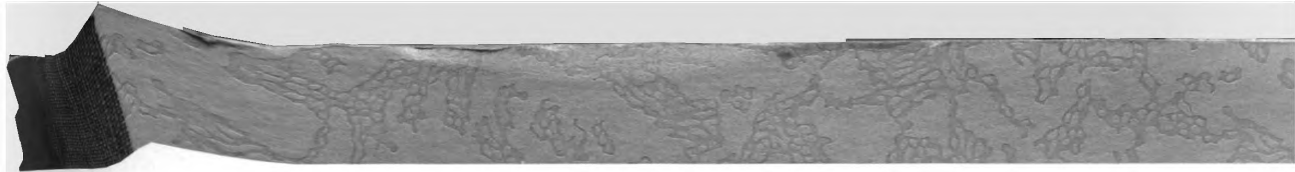
Acknowledgement is made to Dr. W. F. Wertheim, Mr. A. van Marle and Mr. M. P. S. Tjondronegoro of the University of Amsterdam, to Mr. N. Hong of the Institut national d'études démographiques, Paris and to Dr. You Poh Seng of the University of Malaya, for advice and consultation relating to demographic trends and estimates in Indonesia, Viet-Nam, Malaya and Singapore. Not all the views of these consultants are necessarily reflected in the present text. The United Nations is also indebted to Dr. L. D. Stamp of the University of London and Professor E. H. G. Dobby of the University of Washington for kind permission to reproduce some of their maps.

¹ *The Future Growth of World Population* (United Nations publication, Sales No.: 1958.XIII.2).

Figure 1
SOUTH-EAST ASIA, ORIENTATION MAP



MAP NO. 1032 UNITED NATIONS
SEPTEMBER 1958



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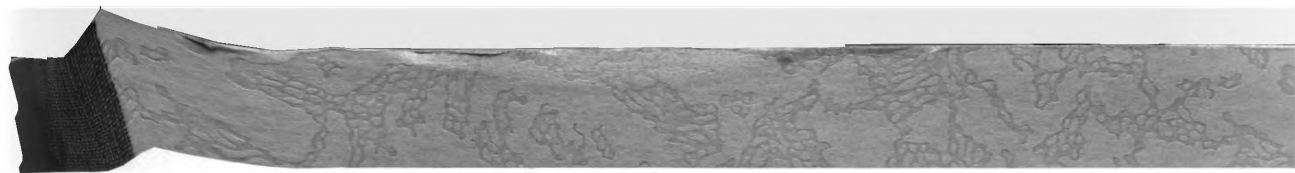
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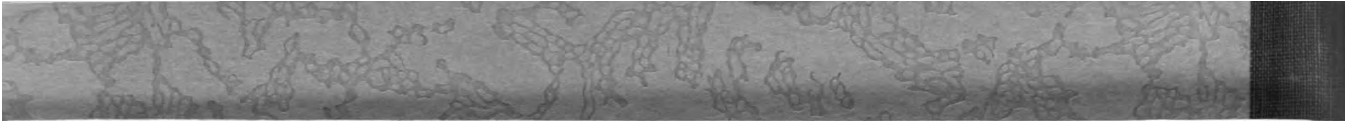
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INTRODUCTION

General note

The present report, dealing with the future population of South-East Asia, is addressed to various kinds of readers. Some, interested mainly in economic, social or other problems, require a simple set of recommended population estimates, trusting the good judgement of those by whom the estimates are recommended. To other readers, the detailed factors underlying population trends, or the quality of the statistics by which they are documented, are of central interest. To satisfy every possible user of this study, both a brief and a rather lengthy report would be needed. The solution adopted here is an intermediate one.

The reader who is least sophisticated in matters of population analysis may, if he wishes, concentrate his attention on the conservative population projections presented and discussed in Section I and in the tables of Annex II. Use of these projections is recommended since they have been prepared with an intention to avoid exaggeration, and with a certain reluctance to accept as evidence some recent observations which are as yet not well founded. The conservative projections are not necessarily the best which can be made in the present state of knowledge, but they are, comparatively, of a less speculative nature than the various alternatives which have also been considered.

Uncritical acceptance of the conservative projections, however, will not satisfy some other readers. In the conditions of South-East Asia, so far as they are known to us, many alternative projections merit equal consideration, although the use of these involves a choice based on a certain amount of reasoning. It is hoped that this report, in the form which has been adopted, most nearly satisfies the needs of the more critical readers.

Because of the inaccuracy and incompleteness of the population statistics of many South-East Asian countries, rather elaborate methods often had to be employed in order to establish the estimates on which the present projections are based. A detailed description of these methods, which would have added unduly to the length of the report, is furnished in a separate document.¹

Subject and organization of this report

The future population estimates presented and discussed in this publication are for the areas of British Borneo,² Burma, Cambodia, Indonesia, Laos, Malaya,

¹ A more detailed account of methods used for estimating population trends in South-East Asian countries will be presented in a forthcoming publication dealing with future population estimates for this and other regions of Asia, now being prepared.

² I.e., the territories of Brunei, North Borneo and Sarawak.

the Philippines, Portuguese Timor, Singapore, Thailand, and Viet-Nam³ which, taken together, constitute South-East Asia proper. In addition, the future populations of Ceylon⁴ and China (Taiwan) are likewise dealt with here, as conditions in these two islands bear some analogy with those elsewhere in South-East Asia.

Though fairly good for a few areas, the population statistics of most countries in the region are rather fragmentary and inaccurate. Many methodological problems had to be overcome in deriving basic estimates suitable for a projection. Some of the projections are rather tentative, as the basic estimates rest on a weak statistical documentation. Annex I of this report brings together some facts concerning the nature of the statistics used, and the basic estimates serving as background for projection into the future.

Carried to the year 1980, the projections begin with 1950 as the base year though, at the time of writing (1958) this date already lies eight years in the past. To adopt 1950 as the base date appeared necessary because, in several of the countries, more or less time has elapsed since a bench-mark was established by the last population census.⁵ Even for current dates, population estimates, if they were to be comparable, had to be made by means of projection. The situation in this respect is likely to improve a few years hence, when the detailed results of censuses planned to be taken around 1960 become available.⁶

Population changes occur as a result of births, deaths and migrations. International migration, though important in South-East Asia's past, is no longer likely to assume large proportions in the future; the projections, therefore, are carried out only on the basis of

³ In this report Viet-Nam is understood to comprise both the northern and southern parts of the country.

⁴ Projections of Ceylon's population to the year 1970 have recently been published in an official source (Ceylon, Department of Census and Statistics, *Quarterly Bulletin of Statistics*, June 1957). Though the methods differ, the results of the official projections for Ceylon are fairly similar to the ones obtained in the present study.

⁵ The last censuses for which detailed results have been published were taken in 1947 and 1951 in the territories of British Borneo, in 1931 in Burma, in 1953 in Ceylon, in 1940 in China (Taiwan), in 1930 in Indonesia, in 1947 in Malaya, in 1948 in the Philippines, in 1950 in Portuguese Timor, in 1947 in Singapore and in 1947 in Thailand. Other censuses, with less detailed results published so far, are those of 1941 in Burma, 1956 in China (Taiwan), 1957 in Malaya, and in 1957 in Singapore. Partial censuses have been taken in Burma during 1953-1954, and household surveys in the Philippines and Thailand since 1956.

⁶ The dates for which future censuses are tentatively planned are: 1958 (Laos), 1959 (Cambodia), 1960 (Philippines, Portuguese Timor, Thailand and Viet-Nam), and 1963 (Ceylon).

estimated rates of fertility and mortality, and assumed future changes therein.⁷

Current rates of fertility and mortality have been estimated by various methods the detailed explanation of which would be too lengthy for this report. These rates, and future changes therein, are applied by the "component method" specifically to the several sex-age segments into which the population is divided. This method is more accurate in its results than the mere use of crude birth rates and death rates applied to the total population, and results are obtained directly for distinct sex-age segments of the future population. The results, therefore, are more informative than figures on total population only.⁸

The future estimates depend on some assumption of orderly future change in rates of fertility and mortality. In this context, two remarks are necessary. First, the projections are not applicable where unforeseen catastrophic events, such as war or severe political disturbance, provoke abrupt future changes in fertility and mortality trends. Secondly, estimating the particular future trend in fertility and mortality is a matter of choice and depends on an opinion concerning future social and economic change, and the manner in which such change is likely to affect population trends.

There is, of course, a recognized need for future estimates which, in the opinion of experts, are "most likely". But to exercise good judgement in this matter is far from easy. Neither the detailed economic and social prospects of South-East Asian countries, nor the relationship of these to human fertility and mortality, are well known. No strong opinion can be held in the present state of knowledge. As the "most likely" future course cannot be very well indicated, prudence requires that those future estimates be recommended for use in which, at least, exaggeration is avoided.

The conservative projections, presented and discussed in the first section of this report, should be interpreted with this latter understanding; here, the general assumption is one of constant fertility, and of such a rate of decline in mortality as, in view of world-wide observations for recent decades, now appears normal.

⁷ It is admitted, however, that population growth in Singapore can be substantially affected by possible future migration. Separate consideration is also given to the subject of internal migration.

⁸ The methods of projection are described in *Manual III. Methods for Population Projections by Sex and Age*, United Nations publication, Sales No.: 1956.XIII.3.

Some vital statistics for the most recent years provide, though unreliably, an indication that mortality in some countries is now declining with unprecedented speed. The evidence will remain controversial until verified with the detailed results of future censuses, but cannot be dismissed entirely. If an optimistic view is held concerning present and future conditions as they affect mortality, then the alternative or low mortality projections presented in Section II may be preferred, but caution is advised in their use.

There is as yet no indication of an eventual decline of South-East Asian birth rates, but this possibility, if only because of its theoretical interest, has not been disregarded. Future population estimates in which such a development is taken into account are presented and discussed in Section III, but are regarded as speculative only.

In the case of a few countries, special considerations have made it desirable to consider some additional alternative projections, discussed in Section IV.

The expected rapid population growth of South-East Asia will underscore a variety of social and economic problems meriting detailed study. The nature of some of these is briefly indicated in Section V, together with an examination of the existing wide disparities in regional population densities within each country.

One of the means of solving such problems is internal migration. In almost every country of South-East Asia, spontaneous and government-assisted movements occur and are being contemplated. The possible demographic effects of such movements have been sketchily calculated in Section IV, as additional background for a discussion of population problems which the projections seem to indicate.

Indonesia is the largest country of the area under study. It is also the one in which the unequal distribution of population comes most sharply into focus. This country, therefore, has been selected as an illustration of how the estimated effects of internal migration can be speculatively applied. The discussion is presented in Section VII; similar speculations might also be made in respect of parts of other countries.

Section VIII places the results of the projections in the perspective of a longer time-period and of the changing role of South-East Asia in the world.

In Annex I, the methods used in this report are described summarily. Detailed results of the "conservative", the "low mortality" and the "declining fertility" assumptions are tabulated in Annexes II, III and IV.

Section I

FUTURE POPULATION — CONSERVATIVE ASSUMPTION

In a recent United Nations publication on future population trends throughout the world, it was estimated that the population of South-East Asia¹ may increase from 171 million in 1950 to 316 million in 1980, it being admitted that mortality may have been assessed too high.² The more detailed calculations of the present report show that, with a conservative assessment of the mortality trend, South-East Asia's population may rise, in these thirty years, from 171 million to 339 million or, if Ceylon and China (Taiwan) are included, from 186 million to 379 million. In short, a doubling of the regional population can reasonably be expected within the period reviewed.

The conservative assumption

Constant fertility and declining mortality characterize the present trend in a majority of the world's populations. A cursory study of South-East Asian demographic statistics shows that populations in this region fall into the same general category except for a disturbance during and after the Second World War, when population growth was temporarily slowed down. Few of the statistics on birth and death registration are trustworthy, and their accuracy may have varied with time; the record of available census statistics is more reliable.

Countries in which three or more successive censuses have been taken have shown the following inter-censal rates of growth (expressed in percentages *per annum*):

Country	Period	Rate
Burma ^a	1911-1921	0.87
	1921-1931	1.05
	1931-1941	1.38
Ceylon	1911-1921	0.92
	1921-1931	1.67
	1931-1946	1.52
	1946-1953	2.62 ^b
China (Taiwan).	1920-1930	2.31
	1930-1940	2.49
	1940-1956 ^c	3.29

¹ South-East Asia being defined to include Netherlands New Guinea, but to exclude Ceylon and China (Taiwan).

² *The Future Growth of World Population*, United Nations publication, Sales No.: 58.XIII.3. In that report, rough calculations were carried out by assimilating the population of each world region with a fictitious population model having similar demographic characteristics. Tested with more detailed statistics available, the model used for South-East Asia seemed to imply a probable overestimate of the level of mortality (*ibid.*, p. 61).

Country	Period	Rate
Malaya	1911-1921	2.17
	1921-1931	2.70
	1931-1947	1.58
	1947-1957	2.49
Philippines . . .	1903-1918	1.91
	1918-1939	2.11
	1939-1948	1.91
Singapore	1911-1921	3.26
	1921-1931	2.91
	1931-1947	3.20
	1947-1957	4.54
Thailand	1911-1919	1.36
	1929-1929	2.20
	1929-1937	2.96
	1937-1947	1.89

^a Increase in enumerated population. Prior to 1941, enumeration was not carried out among small population groups inhabiting certain remote hill tracts.

^b Censuses not corrected for under-enumeration.

^c Including armed forces in 1956.

The record is one of accelerating growth in all seven areas, except for slow-downs in Ceylon (1931-46) Malaya (1931-47), the Philippines (1939-48) and Thailand (1937-47) associated with the Second World War; in Singapore, the rapid increase of 1911-21, caused largely by immigration, was not matched in 1921-31, but has been exceeded more recently.

Ceylon, Malaya and Singapore and recently also China (Taiwan), have experienced considerable immigration, but in Burma, the Philippines and Thailand, migration was of secondary importance only. Thus, except for a temporary slow-down in the 1940's, acceleration of population growth must have occurred either because of a rise in birth rates or because of a fall in death rates.

A change in birth rates is readily observable in the age composition as recorded at a census. But age structure, in most of these countries, has been remarkably constant. In particular, the proportion of children has changed but little. Hence, falling death rates, rather than rising birth rates, have produced this increasing rate of growth.

The particular conditions governing changes in death rates and birth rates will be examined more closely in Sections II and III, where alternative assumptions for population projections are taken into consideration. The conservative assumption used in the present section implies:

1. Constant fertility, and
2. Mortality decline at a rate which, from average observations for the world as a whole, appears normal. In particular, it is assumed that expectation of life at

birth, for high and moderate levels of mortality, increases by two and one-half years every five years.⁵

It remains to be determined from which estimated past level of fertility and mortality the future levels are to be derived. The statistics available for these estimates are of varying kinds and varying recency, and different methods of estimating had to be used. Little reliance could be placed on estimates derived from the 1940-46 period, when both fertility and mortality levels, as affected by the war, may have been atypical, providing no sound basis for a future projection.

As verified by examination of available data for some countries, pre-war and post-war levels of fertility, in most instances, may have been very nearly the same. The fertility level has been estimated from vital statistics (adjusted for incomplete registration), data on age composition at the census, or a seemingly suitable population model, for a very recent period if possible, otherwise for periods preceding 1940. These estimates have then been retained for projection into the future.⁶

Care has likewise been taken to avoid basing a mortality estimate on the 1940-46 period, when conditions may have been abnormal. But estimates of the recent mortality level could be made directly only for those countries where tests have proved that death registration approaches completeness: Ceylon, China (Taiwan), Malaya and Singapore. Even for those four areas, some adjustment was needed to account for an estimated residue of unrecorded deaths.

For Burma, Indonesia, the Philippines, Thailand and Viet-Nam, valid estimates of the mortality level, by various methods, could be made directly only for periods preceding 1940. As suggested by data on the age composition of deaths recorded in the Philippines and Thailand, the 1940 mortality level, after some excess mortality during the war, was reached once more around the year 1950. Hence the general assumption was made that "normal" progress in mortality,⁷ interrupted by the war, was resumed from 1950 onward. Whether, in fact, mortality has declined at a different rate after 1950 has been left undetermined for the purpose of the conservative projection: available statistics are not reliable, and changes occurring in a short period only do not provide a very sound basis for projection into the distant future. It is, nevertheless, possible that mortality has been somewhat over-estimated in several instances.⁸

For British Borneo, Cambodia, Laos and Portuguese Timor, the level of mortality has been conjectured either by analogy or from a population model of apparently

good fit.⁹ In these instances, the errors in the assessment of mortality may be quite considerable, but cannot be evaluated.

Mortality in Burma may also have been considerably over-estimated, since the only basis for carrying the past population trend forward into the recent period contended in making a population balance which agrees with the official population estimate for 1950. It is possible, however, that recent official population figures for Burma fall short of the mark, though to an unknown extent.¹⁰

In summary then, it is probable that the recent or current level of fertility has been estimated with tolerable accuracy in every instance.¹¹ The level of mortality, on the other hand, is more difficult to determine. Here, the conservative assumption may sometimes imply an over-estimate and hence a slower future growth of the population than the facts warrant. The conservative projection should nevertheless be preferred so long as more accurate assessment of the mortality trend in recent years is still a matter of wide interpretation. An exaggerated assessment of future population growth is thereby avoided.

The results: total population

Estimates of total population in 1950 and 1980, obtained in accordance with the conservative assumptions, are assembled in Table 1, below:

Table 1

TOTAL POPULATION (IN MILLIONS) ESTIMATED FOR 1950 AND PROJECTED CONSERVATIVELY TO 1980, AND RELATIVE INCREASES IN POPULATION, 1950-1980

Country	Population (millions)		Population in 1980 per 100 of population in 1950
	1950	1980	1980
British Borneo	1.0	1.8	192
Burma	18.5	32.3	175
Cambodia	3.9	8.7	223
Ceylon	7.5	18.3	243
China (Taiwan) ^a	7.5	21.3	284
Indonesia	75.0	138.5	185
Laos	1.3	2.5	190
Malaya	5.2	14.0	269
Philippines	20.2	50.8	252
Portuguese Timor	0.4	0.8	180
Singapore	1.1	3.3	310
Thailand	18.6	41.6	223
Viet-Nam ^b	26.0	44.6	172

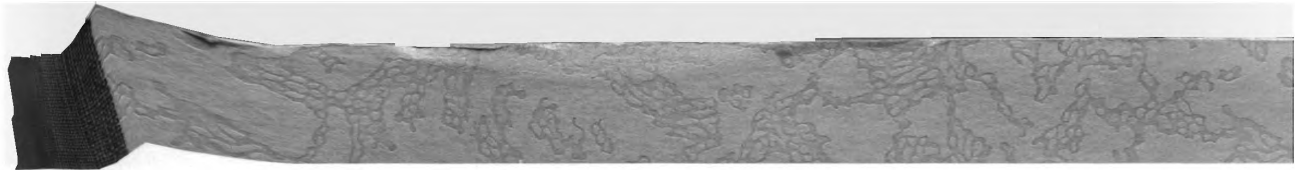
^a Civilian population.

^b In this report Viet-Nam is understood to comprise both the northern and southern parts of the country.

⁹ In particular it was assumed that the non-indigenous population of British Borneo would develop like the population of Malaya and that population trends in Cambodia would parallel those in Thailand. For Laos, Portuguese Timor and the indigenous population of British Borneo, the projections are those of a model.

¹⁰ Lower mortality in Burma than estimated here implies that, already in 1950, Burma's population may have been considerably larger than officially estimated. This possibility is taken into account in the alternative projection presented in Section II and in the special projection shown in Section IV.

¹¹ There is, however, some uncertainty in the case of Viet-Nam. Hence, special alternative projections are presented in Section IV.



The conditional results indicate population increases, over a thirty-year period, by 72 per cent (Viet-Nam) to 210 per cent (Singapore) relative to the population in 1950. Of the thirteen areas, six will have an increase of at least two-thirds, though less than 100 per cent; in three areas, population will grow to between double and two and one-half times its 1950 size; and in four areas the increase will be even greater.

Some of these differences in expected growth are caused by recent or current trends of an unusual character. The populations of China (Taiwan) and Singapore have been boosted by recent immigration, those of Ceylon and Malaya by immigration in the less recent past. Population trends in Indonesia and Viet-Nam have been adversely affected by political disturbances following the end of the Second World War.

Other differences result from the different estimates of current fertility and mortality levels. Fertility was found to be particularly high in China (Taiwan), the Philippines and Singapore, and mortality particularly low in Ceylon, China (Taiwan), Malaya and Singapore. Estimates of relatively high mortality or relatively low fertility, or both, lead to an expectation of less rapid growth of the population of Burma, Indonesia and Viet-Nam.

Special circumstances in any one country, however, can affect the future trends of these conditional estimates. Notably in the case of Singapore, a growing metropolis whose future prosperity will depend largely

on regional and inter-regional trade, the prospects of future population growth will be considerably affected by the prospects of continued migration, not taken into account in the present projection.¹²

Since it is assumed that mortality will decline and fertility will remain constant, populations will grow, generally, at accelerating rates. This acceleration of growth, however, will not be uniform, owing to changes in population structure which have been caused either by migratory movements of the past or by unusual conditions during and after the Second World War. These structural effects can be noted in the population projections for all countries for which recent statistics on age composition could be used (Ceylon, China (Taiwan), Malaya, Philippines, Singapore and Thailand), or for which modifications of age structure have been conjectured (Indonesia and Viet-Nam).¹³ For some other countries, current age structure was estimated in more summary fashion, and the comparison of rates of growth for short time intervals has no significance (British Borneo, Burma, Laos, Portuguese Timor), while for Cambodia the same conditions were assumed as for Thailand. Estimated percentage increases in population for five-year periods are shown in Table 2.

¹² Except up to the year 1955. For the effect of migration continuing beyond 1955, see the projection presented in Section IV.

¹³ Account had to be taken of the probable effects of disturbances during 1940-1950 in Indonesia, and during 1945-1955 in Viet-Nam on fertility and mortality.

Table 2

ESTIMATED PERCENTAGE INCREASE IN POPULATION BY FIVE-YEAR PERIODS, 1950-1980, ACCORDING TO CONSERVATIVE ASSUMPTION

Country	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980
British Borneo ^a	8.0	9.6	11.1	12.3	13.3	14.4
Burma ^a	7.3	8.5	9.4	10.3	11.2	12.1
Cambodia ^a	12.2	13.5	14.2	14.6	15.3	16.1
Ceylon	14.7	14.8	15.1	16.0	17.1	17.9
China (Taiwan) ^b	19.2	18.8	18.5	18.2	19.1	20.4
Indonesia	9.6	10.3	10.7	10.6	11.1	12.3
Laos ^a	8.9	10.0	10.9	11.8	12.7	13.6
Malaya	15.0 ^c	16.2	17.3	18.3	19.8	21.0
Philippines	14.2	15.6	16.5	17.2	17.9	18.7
Portuguese Timor ^a	7.5	8.9	10.0	10.9	11.8	12.7
Singapore	26.0 ^c	18.4	18.1	18.7	20.8	22.7
Thailand	12.2	13.5	14.2	14.6	15.3	16.1
Viet-Nam	1.2 ^d	11.4	11.6	11.3	10.6	11.0

^a Age structure for these countries has been estimated summarily, or by analogy. The detailed changes in calculated future rates of growth, therefore, are not significant.

^b Civilian population.

^c Rate affected by migratory balance estimated for this period.

^d For this disturbed period some rather arbitrary assumptions had to be made.

It has become fashionable to draw up economic plans for periods of about five years. Assuming no migration or other major changes in trend, the population increases which would have to be accommodated in such plans, during 1955-1960, or during 1960-1965, range between 9 and 19 per cent. With declining mortality and constant

fertility, increases ranging from 11 to 23 per cent will have to be envisaged in plans for the 1975-1980 period. It is worth noting that, because of various past conditions affecting sex-age structure, population growth in Ceylon, China (Taiwan), Indonesia, Singapore and Viet-Nam will not be particularly accelerated during the 1960s,

but will undergo a renewed upsurge towards 1980,¹⁴ assuming that fertility remains constant while mortality continues to decline.

Changes in population structure

Past trends in fertility and, to a minor extent, mortality and migration, are the determinants of age structure.

¹⁴ During the 1960's women born in the 1940's will be in the midst of childbearing ages. The number of potential mothers in the 1960's is somewhat reduced by comparatively low birth rates in the 1940's. For this reason, despite declining mortality, population growth in some countries will not be accelerated in the 1960's. In the 1970's acceleration will be the more conspicuous.

Migration has been a significant component of past population changes in Ceylon, Malaya and Singapore. Changes in mortality affect the chances of survival at all ages and, therefore, modify the age structure of a population but slightly. A temporary change in fertility introduces an irregularity in the age pyramid which is passed on to higher ages as time proceeds.

The detailed future changes in age structure, implied in the population projections, can be inferred from the tables in Annex II. In Table 3, below, they are summarized for broad age groups only, for the years 1950 and 1980. Age pyramids in 1950 and 1980, for selected countries, are shown in Figure II.

Table 3
PERCENTAGE COMPOSITION OF POPULATION BY SEX AND AGE, 1950 AND 1980,
AS PROJECTED WITH CONSERVATIVE ASSUMPTIONS

Country	Year	Percentages by sex			Percentages by broad age groups		
		Males	Females	Total	0-14	15-59	60 and over
British Borneo ^a	1950	52.4	47.6	100.0	40.8	55.0	4.2
	1980	51.0	49.0	100.0	44.0	50.8	5.2
Burma ^a	1950	50.9	49.1	100.0	39.1	56.4	4.5
	1980	50.5	49.5	100.0	41.3	53.2	5.5
Cambodia	1950	50.2	49.8	100.0	42.9	53.1	4.0
	1980	50.1	49.9	100.0	44.3	51.2	4.5
Ceylon	1950	53.0	47.0	100.0	40.1	55.1	4.8
	1980	51.5	48.5	100.0	43.6	50.0	6.4
China (Taiwan) ^b	1950	51.0	49.0	100.0	41.1	54.7	4.2
	1980	50.8	49.2	100.0	45.7	49.5	4.8
Indonesia	1950	50.6	49.4	100.0	36.8	58.2	5.0
	1980	50.5	49.5	100.0	39.8	54.1	6.1
Laos ^a	1950	50.5	49.5	100.0	40.8	54.9	4.3
	1980	50.4	49.6	100.0	42.8	52.2	5.0
Malaya	1950	52.4	47.6	100.0	42.2	53.0	4.8
	1980	50.5	49.5	100.0	48.1	46.6	5.3
Philippines	1950	50.3	49.7	100.0	45.3	49.7	5.0
	1980	50.4	49.6	100.0	46.8	48.9	4.3
Portuguese Timor ^a	1950	50.6	49.4	100.0	40.7	55.0	4.3
	1980	50.4	49.6	100.0	42.5	52.6	4.9
Singapore	1950	54.8	45.2	100.0	38.3	58.0	3.7
	1980	51.6	48.4	100.0	48.2	46.1	5.7
Thailand	1950	50.2	49.8	100.0	42.9	53.1	4.0
	1980	50.1	49.9	100.0	44.3	51.2	4.5
Viet-Nam	1950	50.5	49.5	100.0	36.6	57.6	5.8
	1955	49.9	50.1	100.0	34.0	60.1	5.9
	1980	50.3	49.7	100.0	38.6	54.7	6.7

^a Sex-age structure in 1950 for these countries has been estimated summarily, or by analogy. Not much significance should be attached to the comparison of results for 1950 and 1980.

^b Civilian population.

Not much significance can be given to the detailed results for those countries where population age structure had to be estimated in summary fashion (British Borneo, Burma, Laos, and Portuguese Timor). Again, it is to be recalled that the estimates for Indonesia and Viet-Nam are quite speculative and that those for Cambodia have been based on the pattern of Thailand.

Males generally outnumber females, though only slightly, and in most instances the excess of males over

females will tend to diminish further.¹⁵ Because of past immigration, males were still relatively numerous in 1950 in British Borneo, Ceylon, Malaya and Singapore; since

¹⁵ In countries of high mortality, there is often a greater mortality of adult women than of adult men, partly owing to maternal deaths. The mortality of women usually declines more rapidly than the mortality of men, as a result of which the excess of males in the population tends to be reduced. In addition, it is possible that in some censuses the enumeration of women has been less complete than the enumeration of men.

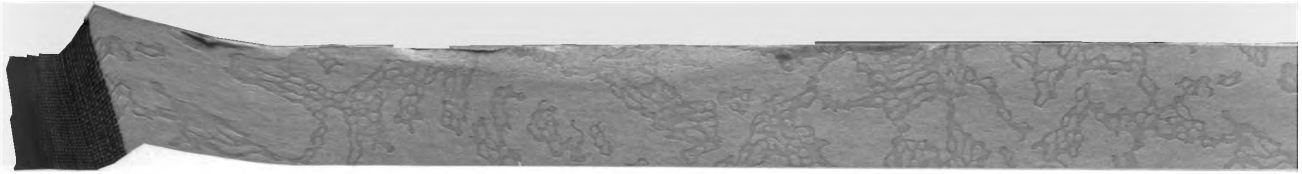
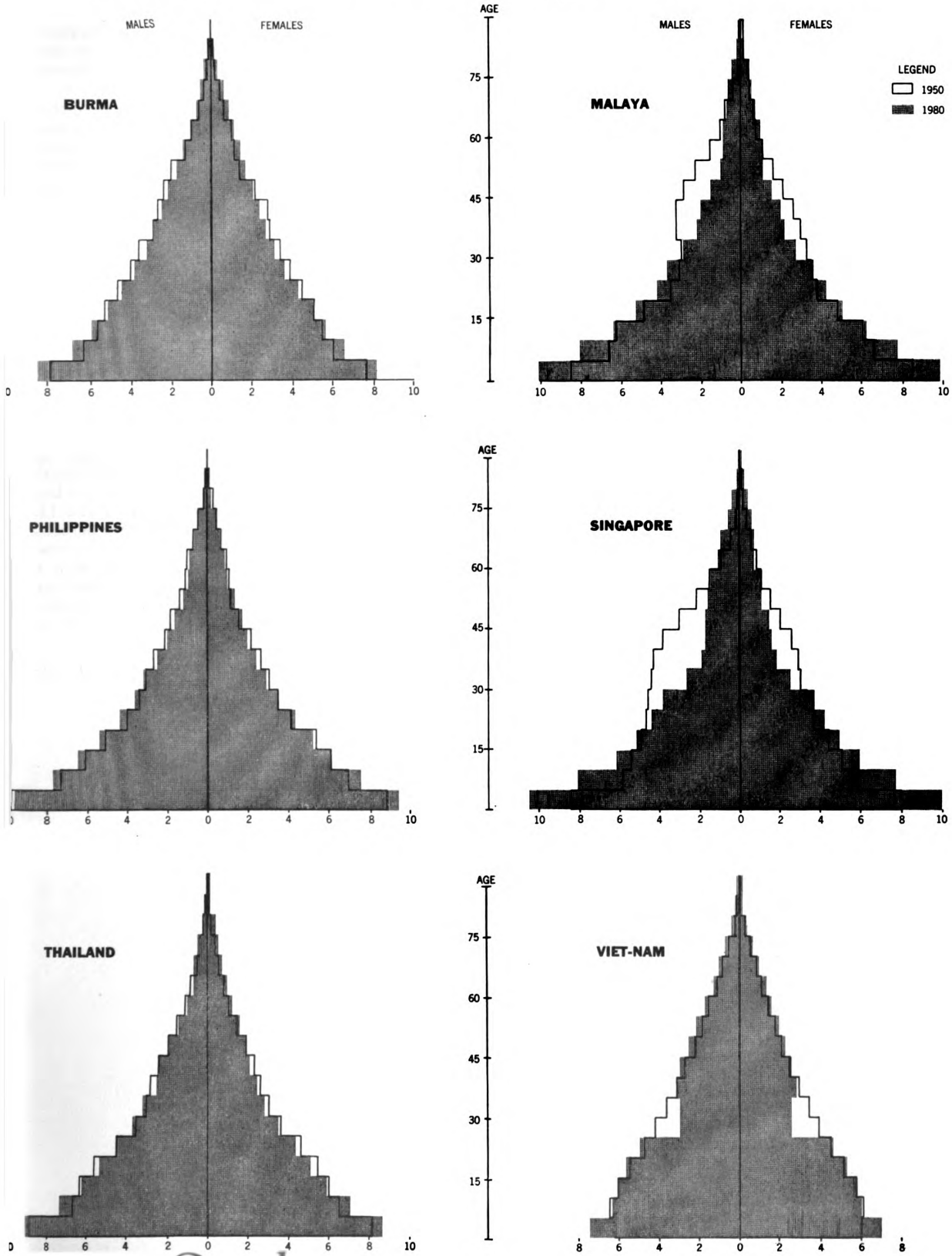


Figure II

PERCENTAGE SEX-AGE COMPOSITION OF POPULATIONS OF SELECTED SOUTH-EAST ASIAN COUNTRIES, 1950-1980



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no further migration is assumed in the projection after 1955 this excess of males will tend to pass away. In Viet-Nam, because of military events, it had to be assumed that there was a heavy excess of mortality of adult males from 1950 to 1955, possibly with results as they appear in Table 3.

In 1950 between 37 and 45 per cent of the several populations were estimated as aged less than 15 years. This percentage is generally a direct reflection of the level of fertility, but also partly affected by mortality and migration. The low percentages estimated for Indonesia, Singapore and Viet-Nam (particularly in 1955) imply estimates of the effects of war-time and post-war disturbances on the birth rate. In all instances, with constant fertility and declining mortality, the projection shows a slight future rise in the proportion of children; in Ceylon, China (Taiwan) and Malaya, where migration has been of some importance, this future rise is more significant, while in Singapore—assuming that migration will not continue in the future—the rise is very sharp.¹⁶

The percentages of persons aged 60 years and more are quite small and will remain small, though slight future rises are indicated in all the projections.¹⁷

The changes in age structure appear more significant when calculated in relation to one age segment of the population rather than to the total. One may regard persons aged 15-59 years as, on the whole, capable of providing for their own support, whereas individuals aged less than 15 or more than 60 are usually (though not invariably) dependent on persons in the best working ages. The dependency burden of workers can then be

estimated very roughly by calculating the number of children (aged under 15) and aged persons (60 years and over) per 100 persons aged 15-59 years, as shown in Table 4. No precise meaning should be attached to this measure, which is intended chiefly to serve the purposes of comparison.

In comparing the figures of Table 4, it will be noted that Singapore presents a special case. Of all the South-East Asian populations, that of Singapore had the lowest dependency burden (72 per 100 aged 15-59) in 1950, and will have the highest (116) in 1980. The low figure in 1950 is largely a reflection of the effects of immigration and of war-time depression of the birth rate. The high figure in 1980 results if it is assumed that no further migration occurs after 1955.

For Viet-Nam, an estimate for 1955 is shown separately. It reflects an assumption of a considerable decline in birth rates during the years of severe disturbance prior to 1955; since a resumption of normal population trends has been assumed for the years after 1955, the effect of abnormal conditions during 1945-1955 gradually disappears with time.¹⁸

For the remaining countries, the following changes can be noted. In 1950, there were between 65 and 91 children per 100 young and middle-aged adults; in 1980 there will be between 74 and 103. In 1950 there were between 8 and 10 aged persons per 100 adults of less advanced age; in 1980 there will be between 9 and 13. In all instances, some future rise in dependency burdens is indicated, but this need not be a cause for concern: the assumption is one of declining mortality; with a corresponding improvement in health, the working capacity of persons aged 15-59 years will be enhanced in at least a proportionate measure. More striking than

¹⁶ See, however, the special alternative projections for Singapore presented in Section IV.

¹⁷ In the Philippines, however, the estimate for 1950 is affected by over-statement of ages.

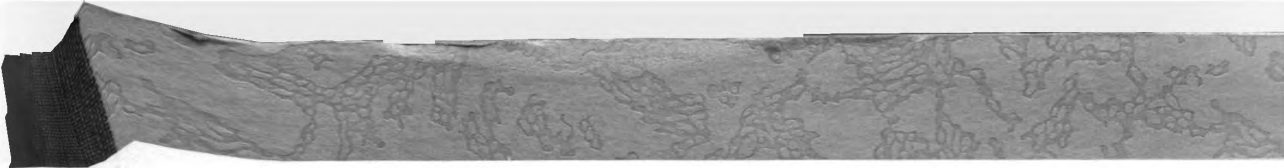
¹⁸ Special alternative projections, however, have also been made both for Singapore and for Viet-Nam. See Section IV.

Table 4

NUMBERS OF PERSONS AGED UNDER 15, AND 60 AND OVER, PER 100 PERSONS AGED 15-19 IN 1950 AND 1980, ACCORDING TO CONSERVATIVE ASSUMPTIONS

Country	1950			1980		
	Under 15	60 and over	Sum of the two	Under 15	60 and over	Sum of the two
British Borneo	74	8	82	87	10	97
Burma	69	8	77	78	10	88
Cambodia	81	8	89	86	9	95
Ceylon	73	9	82	87	13	100
China (Taiwan) ^a	75	8	83	92	10	102
Indonesia	63	9	72	74	11	85
Laos	74	8	82	82	10	92
Malaya	80	9	89	103	11	114
Philippines	91	10	101	96	9	105
Portuguese Timor	74	8	82	81	10	91
Singapore	66	6	72	104	12	116
Thailand	81	8	89	86	9	95
Viet-Nam	63	10	73	71	12	83
(Viet-Nam 1955)	(57)	(10)	(67)			

^a Civilian population.



the changes in time are the differences in age structure which already exist among the several populations, and which will persist in the future if the assumption of comparable future conditions is justified. The situation of Singapore is exceptional, but it is evident that future population changes in Singapore will be determined by other factors as well as the mere continuation of current fertility and mortality trends.

**Estimated changes in crude birth rates
and crude death rates**

Fertility, on the present assumptions, is supposed to remain constant in terms of numbers of children born to women of certain ages. Changes in the composition of the population by sex and age, however, will bring about some modification in the crude birth rate, though the frequency of child-birth among women of given ages remains unaltered.

Mortality is assumed to decline in future in accordance with a progressive rise in expectation of life at birth. Here again, the nature of the age structure, and expected changes therein, will affect the rate at which crude death rates decline. A very rapid fall in the crude death rate is to be anticipated in populations having large proportions of children, because the mortality of infants

and small children is particularly susceptible to rapid decline. It is this rapid decrease in the crude death rate to which much of the anticipated acceleration of population growth must be attributed.

The future crude birth rates, death rates and rates of natural increase implied in the present assumptions, for successive five-year periods, are brought together in Table 5.

In summary, then, the two outstanding facts about South-East Asian populations are their youthful composition and their potential for rapid growth. Even on the conservative assumptions presented here, future growth is likely to be much more rapid than growth in the past. This is illustrated in Table 6, for those countries for which population estimates for the years since 1920 have become available.

According to the figures in table 6, a more rapid population increase is invariably indicated for the 1950-1980 period than the past increase from 1920 to 1950. Increases in 1920-1950 ranged from 41 per cent (Burma) to 161 per cent (Singapore); in 1950-1980 the increases may be from 75 per cent (Burma) to 210 per cent (Singapore), according to the conservative projections. As shown in the following section, however, future increases may be even more rapid.

Table 5

CRUDE BIRTH RATES, DEATH RATES AND RATES OF NATURAL INCREASE 1950-1980,
IMPLIED IN THE CONSERVATIVE ASSUMPTIONS OF CONSTANT FUTURE FERTILITY AND
NORMAL DECLINE IN MORTALITY

Country	1950-1955	1955-1960	1960-1965	1965-1970	1970-1975	1975-1980
British Borneo^a						
Birth rate	46.2	46.2	46.3	45.7	45.1	44.9
Death rate	30.8	27.9	25.2	22.5	20.1	18.0
Natural increase	15.4	18.3	21.1	23.2	25.0	26.9
Burma^a						
Birth rate	44.5	44.1	43.4	42.7	42.3	42.2
Death rate	30.5	27.9	25.4	23.2	21.1	19.4
Natural increase	14.0	16.2	18.0	19.5	21.2	22.8
Cambodia^a						
Birth rate	47.1	47.2	46.2	44.8	44.1	44.1
Death rate	24.1	21.8	19.6	17.5	15.8	14.2
Natural increase	23.0	25.4	26.6	27.3	28.3	29.9
Ceylon						
Birth rate	41.8	40.5	39.7	40.1	40.7	41.0
Death rate	14.4	12.9	11.5	10.5	9.2	8.1
Natural increase	27.4	27.6	28.2	29.6	31.5	32.9
China (Taiwan)						
Birth rate	46.1 ^b	44.3	42.2	40.4	40.8	42.1
Death rate	9.6 ^b	10.3	8.3	7.0	6.0	5.2
Natural increase	36.5 ^b	34.0	33.9	33.4	34.8	36.9
Indonesia						
Birth rate	43.8	43.1	41.4	39.1	38.3	39.1
Death rate	25.4	23.5	21.2	19.0	17.2	16.0
Natural increase	18.4	19.6	20.2	20.1	21.1	23.1
Laos^a						
Birth rate	46.2	45.7	45.0	44.5	44.1	43.9
Death rate	29.2	26.7	24.3	22.1	20.2	18.4
Natural increase	17.0	19.0	20.7	22.4	23.9	25.5
Malaya						
Birth rate	43.6 ^b	45.2	45.3	45.5	46.3	46.8
Death rate	13.4 ^b	15.2	13.4	11.9	10.3	8.8
Natural increase	30.2 ^b	30.0	31.9	33.6	36.0	38.0
Philippines						
Birth rate	48.5	48.7	48.3	47.7	47.2	46.9
Death rate	21.9	19.8	17.9	16.0	14.3	12.7
Natural increase	26.6	28.9	30.4	31.7	32.9	34.2
Portuguese Timor^a						
Birth rate	46.5	46.2	45.7	45.0	44.5	44.1
Death rate	32.0	29.2	26.7	24.3	22.1	20.2
Natural increase	14.5	17.0	19.0	20.7	22.4	23.9
Singapore						
Birth rate	47.6 ^b	43.6	41.6	41.6	44.1	46.4
Death rate	10.6 ^b	10.0	8.5	7.4	6.5	5.6
Natural increase	37.0 ^b	33.6	33.1	34.2	37.6	40.8
Thailand						
Birth rate	47.1	47.2	46.2	44.8	44.1	44.1
Death rate	24.1	21.8	19.6	17.5	15.8	14.2
Natural increase	23.0	25.4	26.6	27.3	28.3	29.9
Viet-Nam						
Birth rate	30.2 ^c	43.1	41.8	39.1	35.8	35.1
Death rate	27.3 ^c	21.6	20.0	17.8	15.7	14.2
Natural increase	2.9 ^c	21.5	21.8	21.3	20.1	20.9

^a Projections based on models, or analogy; comparison of estimated crude rates within short time intervals is not meaningful.

^b Rates according to official vital statistics. These rates are affected partly by immigration in that period and partly by deficiencies of registration. They are therefore not entirely comparable with the rates implied in the population projections for the remaining periods.

^c Estimates for this disturbed period have been assumed somewhat arbitrarily.

Table 6
POPULATION ESTIMATES 1920-1950, CONSERVATIVE PROJECTION 1950-1980, AND
RELATIVE POPULATION INCREASES IN THE TWO PERIODS IN COUNTRIES OF SOUTH-
EAST ASIA

<i>Country and year</i>	<i>Population (thousands) ^a</i>	<i>Population in given year per 100 of population</i>	
		<i>1920</i>	<i>1950</i>
Burma			
1920 ^b	13 100	100	—
1930	14 282	109	—
1940	16 119	123	—
1950	18 487	141	100
1960	21 505	—	116
1970	25 943	—	140
1980	32 332	—	175
Ceylon			
1920	4 486	100	—
1930	5 253	117	—
1940	5 972	133	—
1950	7 547	168	100
1960	9 940	—	132
1970	13 274	—	176
1980	18 327	—	243
China (Taiwan)			
1920	3 736	100	—
1930	4 614	124	—
1940	5 987	160	—
1950	7 478	200	100
1960	10 591	—	142
1970	14 838	—	198
1980	21 272	—	284
Indonesia			
1920	52 327	100	—
1930	60 727	116	—
1940	70 476	135	—
1950	75 002	143	100
1960	90 708	—	121
1970	111 012	—	148
1980	138 518	—	185
Malaya			
1920	2 850 ^b	100	—
1930	3 700 ^b	130	—
1940	4 475	157	—
1950	5 211	183	100
1960	6 965	—	134
1970	9 671	—	186
1980	14 008	—	269
Philippines			
1920	10 600 ^b	100	—
1930	13 094	124	—
1940	16 459	155	—
1950	20 150	190	100
1960	26 605	—	132
1970	36 320	—	180
1980	50 840	—	252
Singapore			
1920	391	100	—
1930	596	152	—
1940	751	192	—
1950	1 062	272	100
1960	1 585	—	149
1970	2 221	—	209
1980	3 295	—	310
Thailand			
1920	9 460	100	—
1930	11 838	125	—
1940	15 296	162	—
1950	18 629	197	100
1960	23 737	—	127
1970	31 088	—	167
1980	41 617	—	223

^a 1920-1940 according to *Demographic Yearbook, 1956*; 1950-1980 as projected.

^b Estimated by interpolation of census data.

Section II

FUTURE POPULATION — ALTERNATIVE ASSUMPTION OF LOW MORTALITY

The projections presented in Section I are conservative in the sense that no unusual development is anticipated for which confirmation, so far, is lacking; hence, fertility has been assumed to remain constant, and mortality to decline from 1950 onward, at rates conforming to average world experience, unless there are clear indications to the contrary.¹ Pending more reliable new information, use of the conservative projections is recommended. But it is useful to consider other alternatives, if only for the sake of determining the range within which future developments are most likely to occur.

Future trends can differ from the conservative assumptions in a great variety of ways. To mention only one possibility, international migration may conceivably attain a new importance. But it would be impractical to take every possible contingency into account, where the intention is to assemble at least some definite sets of estimates which can be readily utilized. With new information, all estimates will eventually have to be revised.

In the present section, the results of an alternative assumption of future mortality trends are presented,² the possibility of different future trends in fertility is considered in the next. In both instances, discussion of the estimates is preceded by an examination of available evidence and of factors likely to affect future trends.³ Some special cases are examined further in Section IV.

Reliable evidence of recent rapid mortality decline

The official registration of deaths approaches completeness in only four areas of the region under study, namely: Ceylon, China (Taiwan), Malaya and Singapore. Though not quite accurate, the death rates recorded in these areas furnish conclusive evidence of an unusually rapid mortality decline in recent years. In 1935-39 the registered crude death rate averaged 24.5 per 1,000 in Ceylon, 20.2 in China (Taiwan), 20.9 in Malaya and 22.3 in Singapore; in 1950-54 average rates for the four areas were: 11.6, 10.1, 13.9 and 11.0 respectively, i.e.,

¹ For Ceylon, China (Taiwan), Malaya and Singapore, the evidence of vital statistics for the 1950-1955, period has been taken into account, it being assumed that, after 1955, further mortality declines will occur at the normal rates. In the case of Viet-Nam (both north and south), conditions during 1950-1955 were abnormal; normal trends were assumed for periods after 1955.

² Except for Ceylon, China (Taiwan) and Singapore, as discussed further on.

³ A fuller treatment of this topic is found in *The Determinants and Consequences of Population Trends*, United Nations publication, Sales No.: 1953, XIII, 3.

roughly one-half of those recorded fifteen years previously. In the projections for these four areas, the rates recorded in 1950-54 have been taken into account, adjustments being made for apparent omissions in registration.

The record of Ceylon is the most instructive, there being no indication that the degree of completeness of death registrations has either improved or deteriorated in the period under review. In Malaya and Singapore, registration may have been more accurate in recent than in earlier years, while the opposite may have happened, at least temporarily, with vital statistics for China (Taiwan).

The drop in Ceylon was most sudden when the recorded death rate fell from 19.8 per 1,000 in 1946 to 14.0 in 1947, and lower rates in the years which followed. This sudden change, however, was caused by an unusual combination of circumstances. Financial stringency during the Second World War had prevented the adoption of new public health measures at a time when scientific methods of disease control were making rapid progress; the death rate in 1946, therefore, was higher than it would have been without material obstacle to the immediate application of new scientific knowledge. Then, almost at once, new measures could be put into effect under favourable administrative conditions and among a population largely concentrated within a small area. The 1946-1947 experience of Ceylon is unlikely to be repeated in a country of larger size.

Even when these special conditions are disregarded, progress from the pre-war to the post-war period has nevertheless been astounding. Allowance made for incomplete registration, the actual death rate of Ceylon may have been about 27 in 1935-1939, as against 13 in 1950-1954; it can be calculated that this drop corresponds to a rise of about 15 years in the expectation of life at birth. Since this was accomplished in a time-interval of 15 years, the annual gain in expectation was by one year. This is twice the normal rate of progress observed in the world and assumed for the purpose of conservative population projections. The facts prove that such rapid progress is possible, though under admittedly favourable conditions.

In the most recent years, progress in Ceylon has slowed down somewhat. Recorded death rates averaged 12.5 in 1949-1951 and 10.3 in 1954-1956; actual rates may have been about 15 and 12.5 respectively. This recent rate of progress, while still considerable, is more nearly in line with the normal rate of the conservative assumptions.

In years preceding 1953, rapid decreases in death rates have also been noted in China (Taiwan), Malaya, and Singapore, followed by somewhat slower decreases since 1953. When allowance is made for estimated omissions of death registers, it appears that mortality in China (Taiwan) and Singapore is now lower than in Ceylon, while in Malaya it is still somewhat higher. If one can now assume that the future decrease in death rates in Ceylon will be at the normal rate, a similar assumption would seem equally valid in the cases of China (Taiwan) and Singapore. In Malaya, whose death rate lags behind that of Ceylon, there is still scope for very rapid progress, at least until that lag is made up.

For other areas of South-East Asia the evidence is more dubious and will presently be examined. At this point, there is no need to assume that mortality elsewhere has declined or will decline as rapidly as in the above-mentioned four areas of relatively accurate death registration. Thus, accurate registration is an indication that the organs of local administration function well in at least this one respect. The same administrative apparatus, in another sphere, contributes to the efficacy of public health campaigns. Marked sanitary progress can, of course, also be made in areas where the registration of births and deaths happens to be less well organized. Nevertheless, it may not be a sheer accident that areas of relatively efficient death registration are also the ones in which death rates have declined most.

Factors affecting mortality

It is now technically feasible to deal cheaply and yet decisively with some of the chief debilitating and death-dealing diseases of the tropics. But technical feasibility is not the only criterion in this connexion. For numerous reasons, practical achievement almost invariably falls short of the technical ideal. Some of the following considerations should be borne in mind.

1. There are practical obstacles to the application of modern sanitary measures stemming from: cultural barriers, difficult administrative access, political disturbances, traditional living habits, a fatalistic outlook, or the concentration on economic and social objectives felt to be of even greater urgency. On the other hand, education and the spreading knowledge of success attained elsewhere inevitably raise a demand for and result in some adoption of various health-protection measures and practices. Obstacles to their propagation may retard, but will not prevent, the decline of mortality.

2. When mortality reaches moderate levels—as it very probably will soon in most of South-East Asia—further progress depends on increased expenditures. Some causes of death, by then, will have been reduced to negligible proportions. Other causes will remain which can be tackled only by a large skilled medical personnel and expensively equipped hospitals. In the past, moderate death risks have been further reduced in countries which enjoyed much higher incomes than most South-East Asian countries do today. Material progress in South-East Asia, and the increasing stock of medical knowledge, may permit further mortality decline to the low levels of wealthier countries. Under less favour-

able conditions, however, the further decrease of mortality may encounter increasing material obstacles.

3. Heavy pressure on local resources of food, together with unfavourable terms of trade, can become a cause of chronic malnutrition. Under adverse conditions, the quantitative or qualitative deterioration of the diet results in deaths of a kind which the most vigorous sanitary programmes are unable to prevent. If the food shortage becomes critical, as in a famine, international relief measures are likely to be forthcoming.⁴ Certainly, the size of the population is never strictly dependent on locally produced food. Nevertheless, continuing failure of the local food supply can defeat many of the gains in human lives resulting from progress in medicine and sanitation.

Countries with deficient death registration

In the conservative population projections, the detailed mortality assumption, for countries with unreliable vital statistics, has generally been arrived at as follows: First, the level of mortality was determined for some inter-censal, or pre-war period, by means of suitable calculations. Secondly, it was supposed that the mortality level which could have normally been expected towards 1940 was attained once more towards 1950. Finally, beginning with 1950, normal progress was supposed to be resumed.⁵

It is possible, but not certain, that two errors have resulted from this method of estimating: the current level of mortality may have been over-estimated, and the rate of further decline under-estimated. Since, in the conservative projections, it was intended to avoid an exaggerated picture of future population growth, it was felt preferable to over-estimate mortality rather than to under-estimate it.

In the alternative projections discussed here, a different point of view is taken. Assumptions are sought in which mortality levels and trends are estimated near their reasonable lower limits, as far as can be inferred from the evidence of admittedly incomplete death statistics. This evidence is now examined. Death rates which have been officially recorded for South-East Asian countries in years since 1930 are brought together in Table 7.⁶

The rates for Burma and Indonesia refer to variable registration areas, but never to the entire country. Death registration in China (Taiwan), probably quite accurate until 1943,⁷ has recently been affected at least by an

⁴ In times of war, when adequate relief measures cannot be supplied, famines and epidemics can exact huge tolls of lives, often far in excess of numbers of military casualties. However, the above argument is intended to apply in times of peace.

⁵ A more detailed account of methods used for estimating population trends in South-East Asian countries will be presented in a forthcoming publication dealing with future population estimates for this and other regions of Asia, now being prepared. Mortality trends from 1940 to 1950, in most countries, can be presumed to have been irregular. In Viet-Nam, irregular conditions prevailed until about 1955.

⁶ Death rates have also been recorded in parts of British Borneo, Portuguese Timor and Viet-Nam, but not over sufficiently long periods for useful comparison with the series shown in this table.

⁷ As borne out by arithmetical tests, see G. W. Barclay, *Colonial Development and Population Trends in Taiwan*, Princeton, 1954.

incomplete registration of infant deaths. In Malaya, the Philippines, Singapore and Thailand, the registers have been deficient to a variable, and unknown, extent. Only in Ceylon has the percentage of omissions from registers been objectively ascertained.⁸ Apart from errors in completeness and coverage, the rates presented in Table 7 are also affected by faulty estimates of the population to which the registered deaths are referred.

Hypothetical corrections of recorded death rates

The defects in recorded death rates are not precisely known. With hypothetical assumptions concerning the possible nature of errors, hypothetical corrections can be carried out. But, so long as these assumptions are unverified, the death rates so corrected can hardly be cited as conclusive evidence.

On one hypothesis, it will be assumed that death registration, though incomplete, is of a constant degree of completeness, the same percentage of all deaths being registered in any one year. With this hypothesis, corrections of recently recorded rates are effected as follows:

⁸ Ceylon, Department of Census and Statistics, *Post-Enumeration Survey, 1953*. Our experimental calculations have shown virtually the same results.

(1) an estimate of the death rate in an earlier period is made by an independent method;⁹ (2) comparison of that estimate with the average of rates actually recorded in that period provides a measure of the completeness of registration; and (3) application of this measure to death rates recorded more recently results in hypothetically corrected estimates of the recent death rates. This method will be referred to as Method I.

Method II starts from an assumption that births and deaths, though both incompletely recorded, are registered with equal completeness in any one year, a further assumption being that the birth rate has remained constant. From these assumptions, hypothetical corrections result as follows: (1) an independent estimate of the birth rate, assumed constant, is made; (2) the degree of completeness of birth registration in any one year is taken to be the ratio of registered births to estimated births; and (3) the recorded death rate is then corrected

⁹ Where possible, the birth rate has been estimated from indications of age composition of the population obtained at a census: the death rate has then been estimated as the difference between this birth rate and the rate of population growth, in an inter-censal period. Both the independent estimate of the death rate and the assumption of constant completeness of registration may be in error.

Table 7
DEATHS PER 1,000 INHABITANTS AS RECORDED IN SOUTH-EAST ASIAN COUNTRIES,
1930-1956^a

Year	Burma ^b	Ceylon	China (Taiwan)	Indonesia ^c	Malaya ^d	Philippines ^e	Singapore	Thailand
1930-34 . . .	18.3	22.4	20.6	17.4	21.5 ^f	16.6	23.8	16.3
1935-39 . . .	22.0	24.5 ^g	20.2	18.4	20.9	16.5	22.3	16.4
1940 . . . . .	...	20.6	19.7	20.3	20.1	16.6	20.9	17.3
1941 . . . . .	...	18.3	16.5	...	...	...	20.8	17.0
1942 . . . . .	...	18.1	18.0	...	...	...	...	16.2
1943 . . . . .	...	20.8	19.0	19.7 ^h	...	...	...	18.4
1944 . . . . .	...	20.8	...	29.4 ^h	...	...	...	17.6
1945 . . . . .	...	21.5	...	...	...	...	...	16.5
1946 . . . . .	...	19.8	...	...	20.0	15.1	...	15.2
1947 . . . . .	...	14.0	...	...	19.4	12.7	13.3	13.4
1948 . . . . .	...	12.9	14.3	...	16.3	12.7	12.4	10.7
1949 . . . . .	...	12.3	13.1	...	14.2	11.9	11.8	10.5
1950 . . . . .	...	12.4	11.5	...	15.8	11.4	12.1	10.0
1951 . . . . .	...	12.7	11.6	...	15.3	11.8	11.9	10.3
1952 . . . . .	...	11.8	9.9	14.6	13.6	11.8	11.2	9.9
1953	21.6	10.7	9.4	13.5	12.4	11.5	10.3	9.4
1954	19.9	10.2	8.2	12.9	12.2	10.3	9.3	9.7
1955	21.1	10.8	8.6	12.7	11.5	9.9	8.7	9.2
1956	21.8	9.8	8.0	13.2 ⁱ	11.3	...	8.1	...

^a Source, unless indicated otherwise, United Nations *Demographic Yearbook, 1957*.
^b 1930-1939: registration area, representing 82.5 per cent of Burma's population; 1953-1956: certain towns only, with a combined population of about 2 million.
^c 1930-1940: United Nations *Demographic Yearbook, 1951*. Prior to 1940, rates refer to the Indonesian population of Java, and Madura.
^d 1932-1940: United Nations *Demographic Yearbook, 1951*.
^e Philippines Department of Health, *Annual Vital Statistics Report, 1955*.
^f 1932-1934.
^g Rate affected by malaria epidemic in 1935.
^h De Vries, "Geboorte en sterfte onder de Japansche bezetting", *Economisch Weekblad voor Nederlandsch-Indië, 1946*, pp. 60-61.
ⁱ Provisional figure.

by dividing it by the ratio obtained in the preceding step.¹⁰

The following independent estimates of birth rates and death rates, admittedly quite rough, were used in this connexion:

¹⁰ As compared with the first, this method has two advantages and two drawbacks. The independent estimate of the birth rate is likely to be more reliable than that of the death rate; and though completeness of death registration may vary with time, completeness of birth registration is likely to vary in similar fashion. On the other hand, the assumptions of a constant birth rate, and of equal completeness in the registration of both births and deaths, are not likely to be accurate.

Country	Death rate (earlier period)	Period in which applicable	Birth rate (assumed constant)
Burma	31	1931-1941	45
Ceylon	26	1931-1946	42
China (Taiwan)	21	1935-1940	45
Indonesia	28	1930-1940	43
Malaya	24	1931-1941	46
Philippines	26	1932-1939	49
Singapore	26	1931-1941	46
Thailand	28	1937-1947	47

The hypothetically corrected death rates resulting from the above assumptions and estimates are presented in Table 8. Some of the recorded series have been interrupted during the Second World War and the years

Table 8
HYPOTHETICAL CRUDE DEATH RATES IN SOUTH-EAST ASIAN COUNTRIES
FOR RECENT YEARS, ESTIMATED ACCORDING TO TWO METHODS

Year	Burma	Ceylon	China (Taiwan)	Indonesia	Malaya	Philippines	Singapore	Thailand
METHOD I^a								
(Assumed pre-war death rate)								
	(31)	(26)	(21)	(28)	(24)	(26)	(26)	(28)
1945 . . . . .	...	26.1	...	...	...	...	...	28.0
1946 . . . . .	...	24.0	...	...	24.7	24.2	...	25.8
1947 . . . . .	...	17.0	...	...	24.0	20.4	15.6	22.8
1948 . . . . .	...	15.7	14.9	...	20.1	20.4	14.5	18.2
1949 . . . . .	...	14.9	13.7	...	17.5	19.1	13.8	17.8
1950 . . . . .	...	15.1	12.0	...	19.5	18.3	14.2	17.0
1951 . . . . .	...	15.4	12.1	...	18.9	18.9	13.9	17.5
1952 . . . . .	...	14.3	10.3	22.8	16.8	18.9	13.1	16.8
1953	42.4 ^b	13.0	9.8	21.1	15.3	18.5	12.1	16.0
1954	29.9 ^b	12.4	8.6	20.2	15.1	16.5	10.9	16.5
1955	31.7 ^b	13.1	9.0	19.8	14.2	15.9	10.2	15.6
1956	32.7 ^b	11.9	8.4	20.6	14.0	...	9.5	...
METHOD II^c								
1930-34	29.8	24.9	20.7	27.2 ^d	26.7 ^d	25.9	28.4	22.1
1935-39	30.8	29.2	20.7	28.2	23.9	25.3	22.3	22.1
1940-44 . . . . .	...	22.7	20.0 ^e	30.6 ^f	22.7 ^f	25.0 ^f	21.4 ^g	23.1
1945 . . . . .	...	24.6	...	...	...	...	...	29.9
1946 . . . . .	...	21.7	...	...	26.3	25.6	...	29.5
1947 . . . . .	...	14.9	...	...	20.8	20.4	13.3	26.6
1948 . . . . .	...	13.6	16.2	...	18.6	19.8	12.3	21.0
1949 . . . . .	...	13.2	13.9	...	14.9	18.6	11.5	17.8
1950 . . . . .	...	13.1	12.0	...	17.3	17.3	12.2	16.5
1951 . . . . .	...	13.4	10.4	...	16.1	18.3	11.8	16.5
1952 . . . . .	...	12.8	9.6	23.7	14.1	18.2	10.8	15.6
1953	30.7 ^b	11.6	9.4	19.5	13.1	17.8	9.7	14.3
1954	26.7 ^b	12.0	8.3	17.4	12.8	15.2	8.7	13.3
1955	25.6 ^b	12.2	8.5	17.8	12.3	14.2	8.4	12.6
1956	27.3 ^b	11.3	8.0	20.2	11.4	...	7.7	...

^a Method depends on an independent estimate of the death rate in an earlier period and an assumption that deaths have been registered with a constant degree of completeness.

^b These estimates are most unreliable: the conditions of vital registration in Burmese towns may differ very greatly from those in the pre-war registration area.

^c Method depends on an independent estimate of the birth rate, assumed to be constant, and the assumption that births and deaths are being registered with the same degree of completeness.

^d 1932-1934 only.

^e 1940-1943 only.

^f 1940 only.

^g 1940-1941 only.

following its end, because difficulties with registration were then encountered; this makes it probable that, in several instances, completeness of registration has varied with time. In other instances, recent census data on age composition furnish evidence, though imprecise, that birth rates have fluctuated under war-time and post-war conditions. No precision, therefore, can be attached to the hypothetical corrections. In the case of Burma particularly, whose vital statistics in recent years are confined to certain urban areas only, it is most doubtful whether the corrections made have any value.

Comparison of hypothetical corrected death rates with those implied in the conservative population projections, 1950-1955

The registered death rates, the hypothetically corrected rates and the rates implied in the population projections presented in Section I of this report, for the 1950-1955 period, are brought together in Table 9. The reservations regarding registered and corrected rates have been stated. In the conservative projections, as has been said, one of two positions has been taken, depending on the reliability of available statistics. In the cases of Burma, Indonesia, the Philippines and Thailand, it was assumed that mortality conditions, such as can be estimated for a period preceding 1940, were once more reached shortly before 1950; beginning with 1950, the normal assumption of a two and one-half year gain in expectation of life every five years was applied. In the cases of Ceylon, China (Taiwan), Malaya and Singapore the recorded vital statistics of the 1950-1955 period¹¹ were taken into account, to be followed by normal mortality decline after 1955.

Some results compared in Table 9 bring out the following points. In Ceylon, China (Taiwan), Malaya and Singapore, the hypothetically corrected rates are very near the levels of the more carefully corrected rates used in the conservative population projections;¹² in these instances, at least, the hypothetical corrections are not very wide of the mark. This observation leads to a presumption that, at least in the Philippines and Thailand, the death rates implied in the conservative projections may be too high. The same may be true of Indonesia if the registration areas for which the death rates have been ascertained in recent years are representative enough of the country.¹³ In the case of Burma, the evidence is quite ambiguous: if the results of recent registration in Burmese towns are comparable with those of pre-war registration over a much wider area, the death rate has not been over-estimated in the conservative projection; on the other hand, it is not improbable that registration in the towns, though not representative of conditions throughout the country, is more accurate and that, accordingly, the death rate implied in the projection is too high.

¹¹ Corrected on the basis of detailed arithmetic tests, the corrections being more refined than those obtained with the rough methods (I and II, above) used here.

¹² In particular, adjustments were made for seemingly incomplete registration of infant deaths. A complete system of balancing equations, providing checks on the accuracy of data on population, births, and deaths, could be worked out for Ceylon.

¹³ These areas comprise most of Java, of which they are fairly representative. But conditions in other Indonesian islands may be different.

Table 9

COMPARISON OF RECORDED DEATH RATES, HYPOTHETICALLY CORRECTED DEATH RATES AND DEATH RATES IMPLIED IN THE CONSERVATIVE POPULATION PROJECTIONS 1950-1955 IN EIGHT AREAS OF SOUTH-EAST ASIA

Country	Average death rates, 1950-1955 ^a			1950-1955 ^b rates implied in conservative population projections
	As recorded	Hypothetically corrected		
		Method I ^c	Method II ^d	
Burma	20.9 ^e	31.3 ^e	27.7 ^e	30.5
Ceylon	11.4	13.9	12.5	14.4
China (Taiwan)	9.9	10.3	9.7	11.3 ^f
Indonesia	13.4 ^g	21.0 ^g	19.6 ^g	25.4
Malaya	13.5	16.6	14.3	16.0 ^f
Philippines	11.1	17.8	16.8	21.9
Singapore	10.6	12.4	10.3	11.4 ^f
Thailand	9.8	16.6	14.8	24.1

^a Years 1950 to 1955 inclusive.

^b Mid-year 1950 to mid-year 1955.

^c Method depends on an independent estimate of death rate in an earlier period, and an assumption that deaths have been registered with a constant degree of completeness.

^d Method depends on an independent estimate of birth rate, assumed to be constant, and the assumption that births and deaths are being registered with the same degree of completeness.

^e 1953-1955. Registration in certain towns only.

^f Rates obtained by reversing the procedure of population projections from 1955 backward to 1950. Actually, because of availability of more detailed statistics estimates for these three areas in 1950 and 1955 presented elsewhere in this report have been arrived at with different procedures.

^g 1952-1955. Variable registration area.

The conservative projections for some other countries (British Borneo, Cambodia, Laos, Portuguese Timor, and Viet-Nam) likewise rest on an assumption that, beginning with 1950¹⁴ normal progress is resumed from a mortality level attained prior to the outbreak of the Second World War. If it is true that current mortality has been over-estimated in the conservative projections for Burma, Indonesia, the Philippines and Thailand, it is possible that mortality has been similarly over-estimated for British Borneo, Cambodia, Laos, Portuguese Timor and Viet-Nam, though there is no evidence to demonstrate this as a fact.

Not only the current level, but also the rate of decline in death rates, may have been wrongly assessed in the conservative projections. Here, the comparison of hypothetical estimates with estimates implied in the conservative projection can be made for six countries only,¹⁵ and not for the same time period. Relevant statistics are brought together in Table 10, where also an arithmetic average is used for all six areas. According to Method I, declines in death rates from around 1950 to around 1955 were by 10 to 31 per cent, with 20 per cent as the average decline; according to Method II, death rates declined in five years by 11 to 31 per cent, with 24 per cent the average decline; in the conservative projections, declines from the 1950-1955 period to the 1955-1960 period are, on an average, 9 per cent only. The evidence suggests, but does not demonstrate, that mortality may have been declining twice as rapidly in recent years as the normal rate conservatively assumed.¹⁶ That this

¹⁴ Beginning with 1955 in Viet-Nam, where disturbed conditions have prevailed until that year.

¹⁵ Vital statistics for the years 1949-1951 are not available for Burma and Indonesia.

¹⁶ Though apparently not in Ceylon, where a particularly sharp decline in mortality has occurred in the years preceding 1950.

is possible, under favourable conditions, has been demonstrated by the statistics for Ceylon for 1935-39 and 1950-54 respectively.¹⁷

The modified mortality assumption

These considerations suggest that the conservative projections may err (1) by over-statement of the mortality level in 1950-1955 and (2) by under-statement of the rate of mortality decline. These conclusions are not firm, the statistics examined may still prove to be deceptive, and the future is of course unknown. If, however, the still unreliable evidence is accepted, a more optimistic view would seem to be justified. A phase of unusually rapid mortality decline may now be in progress, which already began in the 1945-1950 period.

In particular, there are grounds for an assumption that, in the present phase, mortality is declining with twice the speed that otherwise would be normal.

On the other hand, the recent statistics for Ceylon indicate that, once a rather low level of mortality is attained, further decline is likely to be less rapid, possibly near the normal rate. In Ceylon, the phase of unusually rapid progress can now be regarded as terminated, the rate of further decline having reverted to normal. Relatively reliable statistics show that mortality in China (Taiwan) and in Singapore is already lower than in Ceylon, whereas in Malaya it is still slightly higher. There seems to be no need to make alternative mortality assumptions for Ceylon, China (Taiwan) and Singapore other than those already made in the conservative projections.

An assumption of very rapid mortality decline, however, presents much interest for all the remaining areas

¹⁷ See discussion on p. 12.

Table 10

DEATH RATES HYPOTHETICALLY ESTIMATED AND CONSERVATIVELY PROJECTED AND PERCENTAGE DECLINE THEREIN FOR SIX AREAS OF SOUTH-EAST ASIA IN RECENT FIVE-YEAR PERIODS

Country	Hypothetical estimates from vital statistics						Estimates implied in conservative population projections		
	Method I ^a			Method II ^b			1950-55	1955-60	Per cent decline
	1949-51	1954-56	Per cent decline	1949-51	1954-56	Per cent decline			
Ceylon	15.1	12.5	—17	13.2	11.8	—11	14.4	12.9	—10
China (Taiwan) . .	12.6	8.7	—31	12.1	8.3	—31	11.3	10.3	—9
Malaya	18.6	14.4	—23	16.1	12.2	—24	16.0	15.2	—5
Philippines	18.8	15.9 ^c	—15	18.1	14.2 ^c	—22	21.9	19.8	—10
Singapore	14.0	10.2	—27	11.8	8.3	—30	11.4	10.0	—12
Thailand	17.4	15.6 ^c	—10	16.9	12.6 ^c	—25	24.1	21.8	—10
Average ^d	16.1	12.9	—20	14.7	11.2	—24	16.5	15.0	—9

^a Method depends on an independent estimate of death rate in an earlier period, and an assumption that deaths have been registered with a constant degree of completeness.

^b Method depends on an independent estimate of birth rate, assumed to be constant, and the assumption that births and deaths are being registered with the same degree of completeness.

^c Year 1955 only.

^d Arithmetic mean of rates for the six areas.

of South-East Asia. For all these areas, it will be supposed that, already prior to 1950,¹⁸ mortality was declining with twice the speed of the conservative assumption, and that this phase will continue until the lag behind Ceylon has been overcome; thereupon further decline will be at the normal rate. Since mortality in Ceylon also is supposed to continue to decline at the normal rate, equality with Ceylon will be attained by various countries at different dates in the future.¹⁹

In all instances but that of Burma, the modified projections begin with the same population figures estimated for mid-year 1950 that have already been used in the conservative projections. A departure from this rule had to be made for Burma because a firm estimate of that country's current population size was not available. In the conservative assumptions, use was made of the official estimate of Burma's population in 1950, mortality being estimated in such a manner that this population total was obtained in a projection carried forward from Burma's 1941 census. The result is a rather high estimate of Burmese mortality. On the modified assumptions, it was supposed that Burmese mortality might equal that of neighbouring Thailand;²⁰ on this supposition,

¹⁸ 1955 in Viet-Nam, conditions in the country having been severely disturbed until then, 1955 also in Malaya, where available vital statistics have been used for the 1950-1955 period.

¹⁹ Equality with Ceylon, on the modified assumptions, will be attained in 1955 by the non-indigenous population of British Borneo and the population of Malaya; in 1965 by the Philippines; in 1970 by Burma, Cambodia and Thailand, except for an assumed relative lag of adult male mortality in these three countries; and in 1975 by Indonesia and Viet-Nam. The populations of Laos and Portuguese Timor, and the indigenous population of British Borneo, on these assumptions, will not attain the mortality level of Ceylon prior to 1980.

²⁰ The statistical evidence, in the case of Burma, is still rather ambiguous. Hence, Thailand mortality was assumed by simple analogy, there being no obvious reasons why mortality levels in two neighbouring countries of similar culture and similar modes of living should differ.

the population of Burma should have been considerably larger in 1950 than officially estimated. Hence the modified projection for Burma begins with a larger 1950 population.²¹

Results of the modified projection

The results of modified projections for ten areas of South-East Asia are tabulated in Annex III and can be used as reasonable alternatives to the conservative results tabulated in Annex II. For the reasons stated, modified projections have not been carried out for Ceylon, China (Taiwan) and Singapore.

In Table 11 a comparison is made of population estimates for 1980 obtained on the conservative and the modified assumptions respectively. The relative addition to population through rapid mortality decline is the greater, the higher the initial level of mortality. Thus, relatively large additions to the population result for British Borneo, Laos and Portuguese Timor, but only a relatively small addition for Malaya, whose mortality level lags but slightly behind that of Ceylon. For Burma, the difference in the two projected figures is especially large because not only different rates of mortality but also different population totals have already been estimated for 1950.

As compared with the conservative projections, the assumption of lower mortality results also in some further modifications of future age structure. The comparison of results, by broad age groups, is made in Table 12. It will be noted that with low mortality, the relative sizes of the child population (aged under 15) and of the aged segment (aged 60 and over) are slightly increased. But differences in structure resulting from lower mortality are in no case very large, except perhaps in Burma, where the two alternative projections diverge rather widely.

²¹ A conservative projection for Burma, comparable with the modified projection examined here, is presented in Section IV.

Table 11

TOTAL POPULATION 1950 AND 1980 ACCORDING TO CONSERVATIVE AND MODIFIED PROJECTIONS IN TEN AREAS OF SOUTH-EAST ASIA

Country	Population (millions)			Population in 1980 per 100 of population in 1950	
	1950	1980		Conservative projection	Modified projection
		Conservative projection	Modified projection		
British Borneo	1.0	1.8	2.1	192	210
Burma	18.5 ^a	32.3	45.3	175	231 ^a
Cambodia	3.9	8.7	9.9	223	254
Indonesia	75.0	138.5	160.1	185	213
Laos	1.3	2.5	2.9	190	223
Malaya	5.2	14.0	14.4	269	277
Philippines	20.2	50.8	57.0	252	283
Portuguese Timor	0.4	0.8	0.9	180	225
Thailand	18.6	41.6	47.5	223	255
Viet-Nam ^b	26.0	44.6	49.1	172	189

^a For the modified projection, a population of 19.6 million has been estimated for 1950.

^b In this report Viet-Nam is understood to comprise both the northern and southern parts of the country.

Table 12

PERCENTAGE COMPOSITION OF THE POPULATION BY BROAD AGE GROUPS IN 1980, ACCORDING TO CONSERVATIVE AND MODIFIED PROJECTIONS OF POPULATION OF TEN AREAS OF SOUTH-EAST ASIA

Country	Conservative projection			Modified projection		
	0-14	15-59	60 and over	0-14	15-59	60 and over
British Borneo	44.0	50.8	5.2	45.0	49.4	5.6
Burma	41.3	53.2	5.5	44.4	49.9	5.7
Cambodia	44.3	51.2	4.5	45.9	49.3	4.8
Indonesia	39.8	54.1	6.1	41.4	52.1	6.5
Laos	42.8	52.2	5.0	44.5	50.1	5.4
Malaya	48.1	46.6	5.3	48.4	46.3	5.3
Philippines	46.8	48.9	4.3	48.2	47.4	4.4
Portuguese Timor	42.5	52.6	4.9	43.9	50.8	5.3
Thailand	44.3	51.2	4.5	45.8	49.4	4.8
Viet-Nam	38.6	54.7	6.7	39.9	53.1	7.0

The most important effect of low mortality, however, is the acceleration of population growth. Percentage increases in population by five-year periods, obtained on the conservative and on the modified assumptions respectively, are being compared in Table 13. For the ten areas considered, development plans

in the 1975-80 period would have to take into consideration population increases of 11 to 21 per cent, if the conservative assumptions are retained, or 14 to 22 per cent on the modified assumptions. Again, the differences are particularly great in the case of Burma.

Table 13

ESTIMATED PERCENTAGE POPULATION INCREASES IN TEN AREAS OF SOUTH-EAST ASIA, ACCORDING TO CONSERVATIVE AND MODIFIED ASSUMPTIONS, BY FIVE-YEAR PERIODS, 1950-1980

Period	C — conservative assumption				M — modified assumption					
	British Borneo		Burma		Cambodia		Indonesia		Laos	
	C	M	C	M	C	M	C	M	C	M
1950-1955	8.0	9.1	7.3	11.1	12.2	13.3	9.6	10.8	8.9	9.8
1955-1960	9.6	11.7	8.5	13.1	13.5	15.5	10.3	12.3	10.0	12.0
1960-1965	11.1	13.4	9.4	14.7	14.2	16.7	10.7	13.2	10.9	13.4
1965-1970	12.3	15.1	10.3	16.1	14.1	17.6	10.6	13.5	11.8	14.9
1970-1975	13.3	16.5	11.2	17.3	15.3	18.7	11.1	14.5	12.7	16.3
1975-1980	14.4	17.5	12.1	17.9	16.1	19.4	12.3	16.3	13.6	17.9

Period	Malaya		Philippines		Portuguese Timor		Thailand		Viet-Nam	
	C	M	C	M	C	M	C	M	C	M
	1950-1955	15.0	14.9	14.2	15.3	7.5	7.7	12.2	13.4	1.2
1955-1960	16.2	17.1	15.6	17.4	8.9	11.2	13.5	15.5	11.4	12.3
1960-1965	17.3	18.1	16.5	18.9	10.0	12.7	14.2	16.8	11.6	13.3
1965-1970	18.3	19.0	17.2	20.2	10.9	13.9	14.6	17.6	11.3	13.5
1970-1975	19.8	20.4	17.9	20.7	11.8	15.3	15.3	18.8	10.6	13.2
1975-1980	21.0	21.6	18.7	21.3	12.7	16.8	16.1	19.5	11.0	14.1

Section III

SPECULATIVE ASSUMPTION OF A FERTILITY DECLINE

Like the death rates, the birth rates recorded in South-East Asia are also incomplete to a varying extent. The data which are shown in Table 14 suggest that hardly any change in birth rates has occurred in recent times. Such minor changes as appear in the recorded rates might reflect little else than slight improvement or slight deterioration in the completeness of registration.

It is uncertain whether births have been registered with a constant amount of completeness. The compilation of vital statistics was temporarily suspended in several areas during the 1940's owing to the disorganizing effects of the war period; where continued, it may have produced less complete results than in other years. The 1940-44 and 1945-49 averages shown in Table 14, therefore, can be quite misleading. Detailed census statistics, on the other hand, in fact indicate temporary declines in birth rates during those periods. But since 1950 nearly the same birth rates have been recorded as prior to 1940, and there is no obvious reason why the accuracy of recording after 1950 should have differed from that before 1940. Quite probably, birth rates have reverted to very near their pre-war levels. The highest rates are those recently reported for Singapore, but actual rates may have been equally high in some other areas with less accurate registration.

This apparent constancy in the past makes it seem plausible that birth rates may remain nearly constant

also in the future, but this expectation is not certain. A detailed study of population age structure, according to censuses, reveals that birth rates are apt to fluctuate though, so far, only within rather narrow limits.¹ No sign of a change has been detected like the undeniable downward trend in the case of mortality.

Fertility and culture

The desire to postpone death where possible is common to all mankind. Death risks, therefore, will always tend towards the minimum possible under any given conditions. No such universal principle governs the trend in birth rates. There is a positive desire for offspring, but it is coupled with a desire that this offspring should not become unduly numerous. There are wide variations in the most desired number of children in the willingness to act deliberately with this end in view, and in the knowledge of means by which it can be attained.

¹ Thus, Bernadelli's analysis of Burmese census data has led to a discovery of "population waves", evidently caused by fluctuations of the birth rate, of the order of 5 per cent, or more, succeeding each other in the given instance, at intervals of about 30 years (R. M. Sundrum, *Population Statistics of Burma*, Economic Research Project, University of Rangoon, Statistical Paper No. 3, December 1957). Recent census statistics for China (Taiwan), Malaya, the Philippines and Thailand indicate relative deficits of births during the Second World War.

Table 14

REGISTERED CRUDE BIRTH RATES IN SIX AREAS OF SOUTH-EAST ASIA, 1930-1954, BY 5-YEAR PERIODS ^a

Country	1930-1934	1935-1939	1940-1944	1945-1949	1950-1954	Percentage change from 1935-1939 to 1950-1954
Ceylon	37.8	35.7	37.3	39.0	38.5	+ 8
China (Taiwan)	44.7	44.0	41.1 ^b	41.0 ^c	45.9	+ 4
Malaya	37.0 ^d	40.2	40.7 ^e	40.6 ^f	43.5	+ 8
Philippines ^g	31.4	32.0	32.6 ^e	30.5 ^f	32.1	0
Singapore	38.5	46.0	44.8 ^h	46.4 ⁱ	47.4	+ 3
Thailand	34.6	34.9	35.2	25.1	30.6	- 12
Average ^j	37.3	38.8	38.6	37.1	39.7	+ 2

^a Source: United Nations *Demographic Yearbook*, 1953, and *ibid*, 1957 unless otherwise indicated.
^b 1940-1943.
^c 1948-1949.
^d 1932-1934.
^e 1940 only.
^f 1946-1949.
^g Philippines, Department of Health, *Annual Vital Statistics Report*, 1955.
^h 1940-1941.
ⁱ 1947-1949.
^j Arithmetic average for six areas.

The level of fertility actually prevailing in a population, therefore, tends neither towards a maximum nor towards a minimum, but is the net result of mutually offsetting tendencies. Most observations confirm that the attitudes and conditions which underlie human reproductive performance are deeply rooted in culture and are apt to change only slowly, if at all.²

There are two important reasons for the constant high birth rates of South-East Asia, as well as of many other parts of the world. First, mortality in earlier times was so high that no society could have endured without a correspondingly high fertility. Second, despite mortality decline, the *mores* affecting fertility continue to depend on firmly ingrained social traditions and norms which, so far, have not changed much.

Notable declines in fertility, to one-half or less of previously high levels, have occurred in populations of European descent, and in Japan. These declines have been associated with industrialization and urbanization of the modern type. Yet it is not clear what causal nexus has been at work. No area in South-East Asia is more urban nor more industrial than Singapore, but the Singapore birth rate—reported as 48.2 for 1956—is the highest recorded in this region and has shown no tendency towards a decline.

By the evidence of Singapore, therefore, urban industrial development does not, of itself, necessarily provoke a fall in birth rates. Other conditions, such as the structure of families and kinship groups, and the strength of social traditions which govern intra-family and inter-family relations, are of at least equal importance in this connexion. The latter may undergo various changes under the influence of changes in habitat and economic activity, but the effects of change may not appear as rapidly in some societies as they may in others. Anthropological study has not been carried nearly far enough to provide any clues in this matter.³

That different South-East Asian populations may respond differently to a given amount of social and economic change is suggested by the fact that birth rates, though nearly constant in the past, have not everywhere been the same. For the present projections, a crude rate as low as 39 per 1,000 has been estimated for Viet-Nam, while for the Philippines the estimated rate is as high as 49. Both estimates may be inaccurate, but some variation in past and current birth rates is definitely indicated. With this as a premise, one may also expect some future variation of response to changing social and economic conditions. The latter conditions are certainly bound to change.

² For more detailed treatment of the topic, the reader may consult: G. W. Skinner, "Cultural Values, Social Structure and Population Growth", *Population Bulletin of the United Nations*, No. 5, July 1956, pp. 5-12; and UNESCO, *Culture and Human Fertility*, Paris 1954. A technical analysis of the quantitative components is that of L. Henry, "Analysis and Calculation of the Fertility of Populations in Under-developed Countries", *Population Bulletin of the United Nations*, No. 5, July 1956, pp. 51-58.

³ The unusual combinations of marriage frequencies and rates of marital fertility, by age groups of women, for each of the major ethnic groups inhabiting Singapore, have been analyzed by You Poh Seng in "Fertility and the Increase of Population in Singapore", *Proceedings of the World Population Conference, 1954* (United Nations publication, Sales No.: 1955.XIII.8 (Vol. I)), pp. 989-1,000.

Population growth itself is a powerful factor of economic and social change. As argued in Section IV, growth inevitably leads to changes of structure both in the social and economic sphere. As mortality decreases, more children, on an average, survive in each family. As the numbers of survivors are increased, the social and economic accommodation of adolescents within the traditional kinship and village organization may become increasingly difficult. Changes of occupation and migration to other localities may be necessitated by population growth alone, if not also by the new government plans and programmes designed to stimulate economic development. As a result, the conditions under which young persons marry and married persons form families cannot remain the same. Whether, or how soon, an anticipated change of conditions will be reflected in a change in the frequency of child-birth cannot easily be predicted.

From a statistical point of view, three factors of fertility can be distinguished. But the discussion of them below reveals a large area of uncertainty and provides hardly any reliable basis for prediction. Few investigations, so far, have been carried out with the purpose of throwing more light on these questions.

The three factors considered here are the incidence of marriage, the incidence of sterility and the average intervals between births of successive children.⁴

Marriage

The incidence of marriage among women of reproductive age can vary in several ways. Varying numbers of women may remain unmarried. Some women, though married, lose their spouse through death, divorce or separation. The age at which women commonly marry is subject to variation.

Marriage rates are affected by short-term fluctuations provoked by conditions of stress. Thus, in the 1940's because of the war, many marriages had probably to be postponed, but the statistical evidence is quite inconclusive;⁵ with peace re-established, for a time marriages may have been more numerous than usual. A fluctuation in the marriage rate is likely to be followed by a fluctuation in the birth rate, but the long-run effect on the numbers of births need not be great.⁶

⁴ Other factors might be the birth of children to unwed mothers, polygamy and the practice of infanticide. In South-East Asia, these latter factors are probably not of much significance.

⁵ In South-East Asian countries, marriage registration is very incomplete, with the possible exception of China (Taiwan); here, the marriage rate was 8.9 per 1,000 in 1935-1939, fell to 7.7 in 1940-1943, rose to 9.4 in 1948-1951 and reverted to 8.8 in 1952-1954, there being no data for 1944-1947. Statistics for 1956 in Viet-Nam show surprisingly high average ages of brides and grooms at marriage, no doubt largely a result of postponement of marriages in years preceding 1955.

⁶ The "baby boom" resulting from such a development can largely compensate for a relative birth deficit in preceding years when marriage was postponed, except that, with more advanced ages of brides, a shorter period of reproductive life eventually remains to women who have postponed marriage. If heavy war casualties have reduced the supply of young men eligible for marriage, some women may have to wait longer before they find a suitable mate, and some women may remain single.

Nearly all South-East Asian women, so far, have been married before reaching the peak of the reproductive period. Permanent celibacy probably finds little social acceptance. Whether a change in this direction may occur in the future can hardly be predicted. With declining mortality, the marriages of women aged less than, say, 45 years are less frequently terminated by the death of their spouse; on the other hand, commercialization and a weakening of kinship and village ties might lead to more frequent divorce or separation. Probably no appreciable net changes in the fertility of marriages are likely to result from such causes.

A more important factor, then, is the mean age at which women marry. In South-East Asia, this age is generally higher than in India, but lower than in Western countries or Japan. A lowering of the mean age is not likely as it might involve child-marriages. With the increased value placed on education, the decreasing influence of traditional moral standards and greater mobility, there is a possibility that the mean age at marriage may rise.

A tendency for average ages at marriage to rise has been noted in Ceylon,⁷ India,⁸ and Japan.⁹ A comparison of the percentages of women married at particular ages leads to the view that a rather sharp change in marriage habits would be involved if by the end of a 30-year period, the percentage of married women in South-East Asia were as small as that of married Japanese women in 1940. The assumption of such a future change, while conceivable, appears quite drastic.

An experimental calculation was carried out to determine by how much, under South-East Asian conditions, birth rates would be reduced should such a change in marriage habits occur, while rates of marital fertility remained unchanged.¹⁰ The effect would, at first, be quite slight; at the end of twenty years, however, the birth rate would be reduced by 5 per cent and at the end of thirty years by 9 per cent. As there are hardly any indications that such a change is already in progress, a substantial reduction of South-East Asian birth rates, on this basis, is not to be expected within the near future.

Sterility

Sterility, in a narrow sense, is the physical incapacity to bear children. In a wider sense, it can mean that no

⁷ From 1900 to 1950, the mean age of women at marriage rose by 1.6 years. N. K. Sarkar, *The Demography of Ceylon* (Ceylon, Government Press, 1957), p. 68.

⁸ S. N. Agarwala, "The Age at Marriage in India", *Population Index*, vol. 23, No. 2, April 1957. Because of previously prevalent child-marriage, the mean age of women at marriage has risen in every part of India. From 1891 to 1951, the largest rise, by 4.7 years, occurred in the State of Bombay.

⁹ According to Japanese census data, the age at which one-half of the women are married rose by 2 years from 1920 to 1940.

¹⁰ It was assumed that the average of the proportion of women married at various ages, according to censuses of Ceylon (1946), China (Taiwan) (1930), the Philippines (1948), Singapore (1947) and Thailand (1947) would change within 30 years to attain the proportions noted in Japan in 1940. For age groups above 20 years, rates of marital fertility were assumed constant. A rise in the average fertility of the 15-19 year age group had to be assumed since, with a rise in the average age at marriage, a majority of the married women aged 15-19 years would then be near the upper limit of this age group.

children are born in a marriage, whether for physiological or any other reasons. Sterility can be either temporary or permanent.

While there are some individual variations, women are ordinarily capable of bearing children from near the age of 15 to near the age of 45. Some women gain, or lose, this capacity at an earlier or a later age than others, and a few women never attain it. It is possible that differences in climate, diet, or the amount of physical exercise have some effect in this connexion, and that the effect may vary in tune with changes in living habits. However, not much is known on this subject.

Physiological sterility can also be incurred in the course of the reproductive period because of ill-health, a conception at too early an age, or physiological damage suffered in the process of child-bearing. The marriage of girls who are too young, the effects of venereal diseases and, in the view of some, the regular use of quinine as a protection against malaria, can reduce fertility. Progress in education and disease control are, then, likely to lessen this aspect of infertility.

The fact needs emphasis, on the other hand, that some married women bear no children though, physiologically, they may well be capable of doing so. Economic hardship, moral pressures or a displacement of motivating interests can have the result that, past a certain age, or once the desired family size is attained, they avoid the risk of further child-birth. In some societies it is considered indecent for parents to have an additional child once the oldest child has attained marriageable age. In others, people past certain ages commonly are absorbed in extra-familial interests and activities; as a result sexual relations lose their central motivating force. Effective fertility controls exist among populations which have no resort to the contraceptive devices most commonly used in the West, but the motivations involved, and the manner in which motivation may change, have hitherto been little explored.

Intervals between successive births

Children are commonly born to married women at intervals averaging from 24 to 36 months. A nine-month period of pregnancy is usually followed by a brief period of relative sterility, and a more or less extended period of nursing the infant when women also rarely conceive. A lowering of the age at which infants are weaned might thus increase fertility, and a decrease in infant mortality might lower it, as part of the interval between successive births appears to depend on the period during which infants are nursed.

By and large, South-East Asian married women give birth to an average of six to eight children each. This is far from the possible maximum. Thus, supposing 18 years to be the mean age at marriage, and births to follow at intervals of 30 months, those six to eight children would be borne by women having attained ages ranging from 33 to 38 years, i.e., well before the onset of menopause. Perhaps, for some reason or other, average birth intervals are even longer. Perhaps, also, additional child-birth is effectively avoided past a certain age, or past a certain number of children already born.

With the very limited knowledge now available on these matters, it is evident that predictions cannot be made. Each of a number of variable factors, under changing circumstances, can cause either a rise or a fall in fertility.

It is only in the very long run that an eventual decline in fertility would seem to be inevitable: human society will resist a renewed rise in mortality and therefore be forced to accommodate fertility levels to the future low levels of mortality since an indefinite continuance of very rapid population growth is patently impossible. But in the shorter run, such as the period for which the present projections are made, there is no such necessity in any absolute sense.

Rates of fertility decline observed in other areas

The available information gives no indication that South-East Asian birth rates, now generally of the order of 45 per 1,000, are about to decline. There are, in fact, few areas in the world where a significant decline from equally high birth rates has, so far, been observed.

Accurate records of past declines of birth rates are available for countries of western Europe and for Japan; in these areas, however, birth rates were only of the order of about 35 per 1,000 before the decline began. Data can also be found for some countries where birth rates have fallen off from an initially higher level.

Among western European countries, the birth rate of Germany had declined particularly rapidly, and that of the Netherlands particularly slowly. German birth rates averaged 32.9 per 1,000 in 1901-1910 and 20.3 per 1,000 in 1921-1930, a fall of 38 per cent in 30 years, or 1.9 per cent of the initial level per year. The Netherlands birth rate has declined continuously from 35.0 in 1880-1884 to 20.3 in 1935-1939; relative to the initial level, the average annual decline was 0.8 per cent. In Japan, an unusual combination of circumstances¹¹ has brought the birth rate from 34.3 in 1947 to 17.2 in 1957, a 50 per cent decline in 10 years or 5.0 per cent per year.

In the Soviet Union a birth rate as high as 49.2 per 1,000 was recorded in 1891-1900, and 43.5 births per 1,000 were registered in 1926; in 1950-1955 the rate averaged 26.2 per 1,000, a decline of 1.5 per cent per year from the level of 1926.¹² In Bulgaria, the birth rate declined from 42.1 in 1906-1910 to 21.6 in 1950-1954; in Romania, from 42.0 in 1911-1915 to 24.5 in 1952-1954; relative to the initial level, the declines were 1.1 per cent and 1.0 per cent each year. A rapid decline, on the other hand, has been registered in Puerto Rico, from 42.2 in 1947 to

¹¹ A decline of the Japanese birth rate had already been noted at an earlier time, from 35.0 in 1920-1924, to 29.2 in 1935-1939; a sharp decrease in the rate occurred during the Second World War. The high rate of 1947 partly compensated for this temporary postponement. Since then, changes in legislation and economic conditions and the government programme encouraging family limitation, have combined to bring about an extraordinarily sharp reduction of fertility in a highly literate and culturally homogeneous population; it is obvious that the Japanese birth rate cannot continue decreasing at the same pace for many more years.

¹² The Soviet birth rate of 1926 is high for that period, having partly resulted from a compensation of births postponed during the preceding years of international and civil wars.

32.4 in 1957, i.e., by 2.3 per cent of the initial level per year.¹³

It can be concluded that birth rate declines, where they did occur, proceeded at annual rates of between 1 and 2 per cent of the initial level, unless the decline was attended by some rather extraordinary circumstances. In most parts of the world, however, birth rates in excess of 40 per 1,000 have not yet shown any tendency to decrease.

The particular assumption adopted

Since there are still no indications as to the manner and speed with which South-East Asian fertility may decline in the future, if at all, no elaborate calculation of the effects has been attempted. The subject, nevertheless, is of considerable speculative interest. A simple assumption, therefore, has been worked out which can be easily varied in accordance with any given requirements. In particular, it has been assumed that fertility will: (1) remain constant until 1960 and (2) decline continuously thereafter by an annual amount equal to one per cent of its initial (pre-1960) level. Mortality, in this connexion, has been assumed to be in conformity with the conservative population projections. On this assumption, the total reduction in fertility by 1980 will be by 20 per cent. If twice as rapid a fertility decline were to be assumed, twice as large an effect should be expected, with a reduction in fertility amounting to 40 per cent by 1980.

Vital statistics available up to the year 1956 and part of 1957 indicate no definite trend of change in birth rates.¹⁴ Hence, there is hardly the need to assume a significant fertility decline prior to 1960.

To confine the calculation to a 20-year period (1960-1980) has a considerable practical advantage. By 1980, none of the individuals born after 1960 will be more than 20 years old. For all age groups not affected by future numbers of births, the expected numbers of survivors have already been calculated in the projections presented in Sections I and II. The numbers of births themselves are calculated from the estimated numbers of women of child-bearing ages, but the latter remain practically unaffected until 1980.¹⁵ Relative to a constant-fertility projection, therefore, future births and survivors from future births will be reduced almost strictly¹⁶ in pro-

¹³ The rapid decline in Puerto Rico has been associated with much emigration and intensified contacts with the industrial economy of the United States.

¹⁴ The decline in the Ceylonese birth rate from a recorded 39.8 in 1951 to a recorded 36.4 in 1956 is merely a return to the pre-war level, following a temporary rise. Thus, the birth rate recorded in Ceylon averaged 36.2 in 1938-1942, 38.4 in 1943-1947, and 39.4 in 1948-1952, reverting to 37.0 in 1953-1956. The precise reasons for the temporary rise are not known, but there is as yet no cause to interpret the rates recorded recently as part of a trend towards a decline.

¹⁵ A small number of births in 1975-1980 will be by women attaining ages 15-19 by 1980, i.e., by women born in 1960-1965 when the birth rate is already declining. The effect, however, is so slight that it can be disregarded for present purposes. After 1980, on the other hand, the reduction in the number of potential mothers will contribute more substantially to the further fall in birth rates.

¹⁶ Except for the small error referred to in the preceding footnote, disregarded for the present purposes.

portion to the assumed reduction of fertility rates. A simple multiplication table, therefore, suffices to derive the modified estimates of numbers aged 0-4 in 1965, 0-9 in 1970, 0-14 in 1975 and 0-19 in 1980, directly from the estimates in the constant-fertility projection. Should future fertility be assumed to change in some different manner, another multiplication table can readily be substituted.

On that assumption, the multiplication table required to modify the results of a constant-fertility projection is shown below. An annual decline in fertility by one per cent of the initial level produces an average decline by 2.5 per cent over the first five-year period, by 7.5 per cent in the next five-year period and so forth. These are the percentages of births calculated in the constant-fertility projection which, because of the fertility decline, will not after all take place. Numbers of future survivors in particular age groups will be similarly reduced, relative to the constant-fertility projection. (See Table 15.)

Table 15

PERCENTAGE OF PERSONS CALCULATED AS SURVIVORS ON A CONSTANT-FERTILITY ASSUMPTION WHO WILL NOT HAVE BEEN BORN, ACCORDING TO STATED ASSUMPTION OF FUTURE FERTILITY DECLINE

Age group	1965	1970	1975	1980
0-4	2.5	7.5	12.5	17.5 ^a
5-9	2.5	7.5	12.5
10-14	2.5	7.5
15-19	2.5
Other ages

^a Disregarding the slight effect of the reduction of the number of women aged 15-19 in 1980.

The percentages in Table 15 are valid for persons of either sex. They can be used either in conjunction with the conservative projections, or with the projections in which low mortality was assumed. For present purposes, results will be presented which are derived from the conservative projections. In this manner, three sets of estimates with high, medium and low population figures respectively, as required by many users of population projec-

tions, are obtained. The medium figures are those obtained in the conservative projections (constant fertility, normal decline in mortality); the high figures are those of the low-mortality assumption, fertility being assumed to remain constant; and the low figures, finally, differ from the medium ones in respect to the assumed decline in fertility.

The declining fertility projection is obtained by subtracting future numbers of survivors from births not taking place according to Table 15, from the numbers calculated in the constant-fertility projection. It is obvious that, should fertility decline at twice the assumed speed, twice as many individuals "not born" will have to be subtracted. A future rise in fertility, or any other future trend in fertility, can likewise be taken into account by substitution of some other multiplication table for the one used here.

Application of the assumption

As an example of the application of Table 15, calculations referring to the population of the Philippines are shown in some detail below. The numbers in age groups under 20 years, and totals according to the conservative projections, are shown in Table 16; the numbers not born, assuming a one per cent annual fertility decline after 1960, in Table 17 and the expected future population on the latter assumption, after deduction of numbers not born, in Table 18.

The population of the Philippines has been conservatively projected to a figure of 26,605,000 for the year 1960, and 50,840,000 for 1980; with fertility declining as assumed, the population in 1980 would amount to 47,571,000, i.e., 3,269,000 less than if fertility were to remain constant.

Total population 1960-1980 according to alternative projections

Using the same methods with respect to the population projections for other countries, estimates of future population on the assumption of declining fertility are obtained for all areas of South-East Asia. Results for age groups under 20 years are tabulated in Annex IV. Because of the interest there is in comparing future high, medium and low estimates of total population,

Table 16

POPULATION OF THE PHILIPPINES, 1965-1980, ACCORDING TO CONSERVATIVE ASSUMPTIONS (DETAILED AGE GROUPS OF EITHER SEX UP TO 20 YEARS OF AGE; NUMBERS IN THOUSANDS)

Ages	Males				Females			
	1965	1970	1975	1980	1965	1970	1975	1980
0-4	2 938	3 453	4 092	4 893	2 862	3 362	3 980	4 756
5-9	2 349	2 775	3 286	3 922	2 292	2 708	3 206	3 824
10-14	1 943	2 310	2 735	3 245	1 894	2 252	2 668	3 166
15-19	1 745	1 909	2 275	2 699	1 586	1 859	2 217	2 632
Other ages	6 634	7 648	9 190	10 858	6 746	7 844	9 183	10 845
TOTAL	15 609	18 295	18 578	25 617	15 380	18 025	21 254	25 223

Table 17

PERSONS CALCULATED ON CONSTANT-FERTILITY ASSUMPTION FOR THE PHILIPPINES WHO WILL NOT HAVE BEEN BORN, ACCORDING TO ASSUMPTION OF FERTILITY DECLINE, 1965-1980 (NUMBERS IN THOUSANDS)

Ages	Males				Females			
	1965	1970	1975	1980	1965	1970	1975	1980
0-4	73	259	512	856	72	252	498	832
5-9 . . . . .	...	69	246	490	...	68	240	478
10-14 . . . . .	...	...	68	243	...	...	67	237
15-19 . . . . .	...	...	...	67	...	...	...	66
Other ages . . . . .	...	...	...	...	...	...	...	...
TOTAL	73	328	826	1 656	72	320	805	1 613

the totals obtained in the several projections are brought together in Table 19. The high series is that obtained on the modified low-mortality assumption, fertility remaining constant. The medium series corresponds to the conservative assumptions of normal mortality decline and constant fertility. The low series also represents normal mortality decline, with the additional assumption of an annual one per cent decline in fertility beginning in 1960. In addition, a very low series is shown, in which the assumption has been made that fertility declines twice as rapidly, i.e., by an annual two per cent of its initial level, after 1960.

It will be noted that in every instance a fairly rapid population increase is to be expected even on the very low assumption of a rapid (2 per cent) decline in fertility, combined with a normal decline in mortality. In several instances (British Borneo, Burma, Cambodia, Indonesia, Laos, Portuguese Timor, Thailand and Viet-Nam) the high estimates, assuming sharp declines in mortality, exceed the medium estimates by a wider margin than that by which the very low estimates fall below the medium. Only in periods after 1980 can a substantial reduction of population growth be expected to result from the cumulated effects of fertility decline beginning in 1960.

By and large, the effect of a moderate future decline in fertility (by one per cent a year, of the initial level) will be to offset the effect of future mortality decline. As a result, the rate of population growth will then remain

fairly constant. With a rapid future decline of fertility, on the other hand, the rate of population growth will be slowed down somewhat.

As an example, we may observe the percentage population increases, in successive five-year periods, indicated by the figures in Table 19 for the Philippines. The high estimates (very rapid mortality decline, constant fertility) show an increase of 18.9 per cent for 1960-65, of 20.2 per cent for 1965-70, of 20.7 per cent for 1970-75 and of 21.3 per cent for 1975-80. The medium estimates (normal mortality decline, constant fertility) show these successive percentages: 16.5, 17.2, 17.9 and 18.7. On the assumption of a moderate (1 per cent) fertility decline, the percentages become: 15.9, 15.7, 15.5 and 15.5. With rapid (2 per cent) fertility decline population growth slows down, the successive percentage increases in five-year periods being 15.4, 14.1, 13.0 and 12.0. Similar observations can be made with figures calculated for other countries.

On the same four assumptions for which results are tabulated in Table 19, percentage increases in total population over the twenty years from 1960 to 1980 will be as shown in Table 20 below. Even with a rapid decline in fertility, and a conservative assumption for mortality, the increases will still, in all cases, be quite considerable. In fact, they will continue to be more rapid, despite fertility decline, than population increases were in the period from 1920 to 1940. (See Section I, Table 19.)

Table 18

POPULATION OF THE PHILIPPINES, 1965-1980, ACCORDING TO ASSUMPTION OF FERTILITY DECLINE (DETAILED AGE GROUPS UP TO 20 YEARS OF AGE; NUMBERS IN THOUSANDS)

Ages	Males				Females			
	1965	1970	1975	1980	1965	1970	1975	1980
0-4	2 865	3 194	3 580	4 037	2 790	3 110	3 482	3 924
5-9	2 349	2 706	3 040	3 432	2 292	2 640	2 966	3 346
10-14	1 943	2 310	2 667	3 002	1 894	2 252	2 601	2 922
15-19	1 745	1 909	2 275	2 632	1 586	1 859	2 217	2 566
Other ages	6 634	7 648	9 190	10 858	6 746	7 844	9 183	10 845
TOTAL	15 536	17 967	20 752	23 961	15 308	17 705	20 449	23 610

Table 19

FOUR ALTERNATIVE SERIES OF FUTURE POPULATION ESTIMATES IN AREAS
OF SOUTH-EAST ASIA, 1960-1980 (IN THOUSANDS)

Country and year	High series (rapid mortality decline, constant fertility) ^a	Medium series (normal mortality decline, constant fertility)	Low series (normal mortality decline, moderate fertility decline)	Very low series (normal mortality decline, rapid fertility decline)
British Borneo				
1960	1 168	1 130	1 130	1 130
1965	1 325	1 256	1 250	1 244
1970	1 525	1 410	1 388	1 366
1975	1 776	1 598	1 542	1 486
1980	2 087	1 829	1 719	1 609
Burma				
1960	24 607	21 505	21 505	21 505
1965	28 232	23 529	23 435	23 341
1970	32 767	25 943	25 546	25 149
1975	38 447	28 837	27 884	26 931
1980	45 319	32 333	30 503	28 673
Cambodia				
1960	5 087	4 952	4 952	4 952
1965	5 939	5 662	5 637	5 612
1970	6 984	6 480	6 371	6 262
1975	8 293	7 470	7 199	6 928
1980	9 905	8 672	8 145	7 618
Ceylon				
1960 . . . . .	...	9 940	9 940	9 940
1965 . . . . .	...	11 445	11 398	11 351
1970 . . . . .	...	13 774	13 063	12 852
1975 . . . . .	...	15 543	15 001	14 459
1980 . . . . .	...	18 327	17 227	16 127
China (Taiwan)				
1960 . . . . .	...	10 591	10 591	10 591
1965 . . . . .	...	12 552	12 495	12 438
1970 . . . . .	...	14 838	14 586	14 334
1975 . . . . .	...	17 670	17 023	16 376
1980 . . . . .	...	21 272	19 931	18 590
Indonesia				
1960	93 344	90 708	90 708	90 708
1965	105 656	100 370	99 973	99 576
1970	119 933	111 012	109 372	107 732
1975	137 376	123 364	119 465	115 566
1980	159 728	138 518	130 970	123 422
Laos				
1960	1 610	1 566	1 566	1 566
1965	1 826	1 736	1 728	1 720
1970	2 098	1 945	1 915	1 885
1975	2 440	2 190	2 115	2 040
1980	2 876	2 488	2 342	2 196
Malaya				
1960	7 017	6 964	6 964	6 964
1965	8 286	8 169	8 131	8 093
1970	9 858	9 670	9 498	9 326
1975	11 870	11 575	11 126	10 677
1980	14 428	14 008	13 078	12 148
Philippines				
1960	27 280	26 605	26 605	26 605
1965	32 422	30 989	30 844	30 699
1970	38 957	36 320	35 672	35 024
1975	47 009	42 832	41 201	39 570
1980	57 032	50 840	47 569	44 298

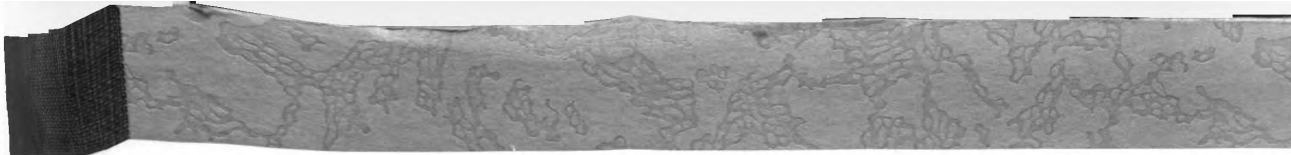


Table 19 (continued)

Country and year	High series (rapid mortality decline, constant fertility) *	Medium series (normal mortality decline, constant fertility)	Low series (normal mortality decline, moderate fertility decline)	Very low series (normal mortality decline, rapid fertility decline)
Portuguese Timor				
1960	528	514	514	514
1965	595	561	559	557
1970	678	624	614	604
1975	782	704	680	656
1980	913	793	746	699
Singapore				
1960 . . . . .	...	1 585	1 585	1 585
1965 . . . . .	...	1 873	1 865	1 857
1970 . . . . .	...	2 221	2 183	2 145
1975 . . . . .	...	2 688	2 585	2 482
1980 . . . . .	...	3 295	3 074	2 853
Thailand				
1960	24 396	23 737	23 737	23 737
1965	28 487	27 120	27 000	26 880
1970	33 492	31 088	30 566	30 044
1975	39 781	35 834	34 553	33 272
1980	47 523	41 617	39 089	36 561
Viet-Nam				
1960	29 545	29 286	29 286	29 286
1965	33 483	32 668	32 536	32 404
1970	38 015	26 351	35 805	35 259
1975	43 050	40 197	38 948	37 699
1980	49 131	44 626	42 293	39 960

* Not applicable to Ceylon, China (Taiwan) and Singapore.

Table 20

POPULATION IN 1980 PER 100 POPULATION IN 1960,
ACCORDING TO FOUR ALTERNATIVE SERIES OF FUTURE
POPULATION ESTIMATES FOR AREAS OF SOUTH-EAST
ASIA

Country	High series (rapid mortality decline, constant fertility) *	Medium series (normal mortality decline, constant fertility)	Low series (normal mortality decline, moderate fertility decline)	Very low (normal mortality decline, rapid fertility decline)
British Borneo	179	162	152	142
Burma	184	150	142	133
Cambodia	195	175	164	154
Ceylon . . . . .	...	184	173	162
China (Taiwan) . . . . .	...	201	188	176
Indonesia	171	153	144	136
Laos	179	159	150	140
Malaya	206	201	188	174
Philippines	209	191	179	167
Portuguese Timor	173	154	145	136
Singapore . . . . .	...	208	194	180
Thailand	195	175	165	154
Viet-Nam	166	152	144	136

* Not applicable to Ceylon, China (Taiwan) and Singapore.

**Changes in age structure
resulting from declining fertility**

Even with declining fertility, population growth in South-East Asia will continue to be rapid, but considerable changes in the age composition of the population are to be expected under this assumption. In the more remote future, these changes in age structure will contribute to a further slowing down of population growth: as the number of individuals in reproductive ages ceases to grow rapidly, the number of births can fall off more significantly. In the present study, however, attention is confined to periods up to the year 1980.

Taking once more the example of the Philippines, changes in age composition can be calculated on various assumptions which are brought together in Table 21 below. When fertility remains constant, normal mortality decline results in a slight relative increase of the child population. With a moderate (one per cent per year) decline in fertility, this tendency is counteracted, resulting in a slight relative decrease of the child population, and a slight relative increase in the proportion of adults. With a rapid decline in fertility, the latter effect assumes greater importance. More profound changes in age structure, however, would follow after the year 1980.

The importance of these changes, within the period under study, becomes apparent as we examine the ratios of persons in dependent ages (i.e., aged under 15, and 60 and over) to persons of working ages (aged 15-59 years), shown in Table 22.

Because of declining mortality, there is a tendency for the dependency ratio (i.e., the number of persons

aged under 15, and 60 and over, per 100 persons aged 15-59) to rise somewhat; with a moderate decline in fertility, the ratio tends to fall off; with a rapid decline in fertility, it falls off considerably. Essentially the same conclusions follow when the several alternative population projections for South-East Asian countries other than the Philippines are examined.

Table 21

PERCENTAGES OF THE POPULATION OF THE PHILIPPINES IN BROAD AGE GROUPS, 1960-1980, ACCORDING TO VARIOUS ASSUMPTIONS OF FUTURE FERTILITY, MORTALITY BEING ASSUMED TO DECLINE AT NORMAL RATES

Ages	Constant fertility			Moderate decline in fertility			Rapid decline in fertility		
	1960	1970	1980	1960	1970	1980	1960	1970	1980
0-14	46.1	46.4	46.8	46.1	45.4	43.4	46.1	44.4	39.6
15-29	26.4	26.4	26.2	26.4	26.9	27.7	26.4	27.4	29.5
30-44	14.7	14.9	14.9	14.7	15.1	15.9	14.7	15.4	17.1
45-59	8.6	8.1	7.8	8.6	8.3	8.3	8.6	8.4	8.9
60-74	3.5	3.5	3.6	3.5	3.5	3.9	3.5	3.6	4.2
75 and over . . .	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
TOTAL	100.0	100.0	100.0	100.0	99.9	99.9	100.0	99.9	100.1

Table 22

RATIOS OF PERSONS AGED UNDER 15, AND 60 AND OVER, TO 100 PERSONS AGED 15-59 IN THE PHILIPPINES, 1960-1980, ACCORDING TO VARIOUS ASSUMPTIONS REGARDING FUTURE FERTILITY

Ratio to those aged 15-19	Constant fertility			Moderate decline in fertility			Rapid decline in fertility		
	1960	1970	1980	1960	1970	1980	1960	1970	1980
Under 15	93	94	96	93	90	84	93	87	71
60 and over . . .	9	8	9	9	8	9	9	8	9
Sum of the two . .	102	102	105	102	98	93	102	95	80

Section IV

OTHER SPECULATIVE PROJECTIONS: BURMA, VIET-NAM, SINGAPORE AND MALAYA

The population projections discussed so far may be variously affected by errors of estimate and errors of judgement, but to improve them substantially would be difficult in the present state of knowledge. Pending new, more detailed, or more accurate information, they may be regarded as nearly the best assessment of future population trends in South-East Asia that can now be made.

However, a few instances of trends different from those assumed in the preceding sections merit further consideration. These are Burma, Viet-Nam, Singapore and Malaya.

In the case of *Burma*, the projections presented in Sections I and III are not comparable with that presented in Section II. In the first case a smaller population and a higher initial level of mortality have been assumed than in the other. Yet another set of conservative projections allowing for declines in fertility is needed for comparison with the one discussed in Section II.

In the case of *Viet-Nam*,¹ estimated trends in mortality and fertility are based on certain fragmentary data relating to pre-war periods. Since then so much has happened in that country that the validity of pre-war observations in a projection into the future can be seriously questioned. Since a relatively low level of fertility has been estimated, it is at least of some interest, pending new information, to take the possibility of higher post-war fertility into account, as is done in this section.

Singapore, so far, shows no more inclination towards declining fertility than do other areas in the region. Yet, considering its high degree of urbanization, should a fertility decline occur, there is a distinct possibility that, in the case of Singapore, it might be especially rapid. A projection has been made accordingly, showing the effects of an extremely rapid fertility decline (Table 28).

According to available evidence, there has been some migration between *Malaya* and *Singapore*. For the 1950-1955 period, estimated migration has already been taken into account in the population estimates and projections for the two areas. Since migration at a similar rate may also continue in the future, projections are now presented in which the effects of continued migration on the growth of population in both *Malaya* and *Singapore* are taken into account for periods after 1955.

¹ In this report Viet-Nam is understood to comprise both the northern and southern parts of the country.

1. Burma

The official 1950 population estimate for Burma has been adopted as a starting point for the conservative population projection in Section I. This figure could have resulted from the population as enumerated in 1941 only if mortality, prior to 1950, was rather high. In the conservative projection, mortality so estimated is assumed to decline at a normal rate after 1950.

There is no obvious reason why mortality in Burma should have been any higher than that estimated in the case of Thailand. In that event, however, population would have had to be larger than officially estimated already in 1950. Accordingly, in the low-mortality projection of Section II, mortality has been estimated lower, the population in 1950 has been estimated at a higher figure, and mortality has been assumed to decline very rapidly from 1950 onward.

The Burma projections of Section III (declining fertility) are comparable with that of Section I, i.e., the starting point is the official estimate for 1950, and a rather high level of mortality is assumed. It is evident that the projections of Sections I and III are not comparable with that of Section II. However, in view of the difficulty of determining the current level of mortality in Burma, such a wide range of estimates was considered necessary.

On the other hand, it may be useful for certain purposes to have a conservative population projection for Burma comparable with the low-mortality projection in Section II. But in comparable projections the population in 1950 and the initial level of mortality must be the same, with the only difference that after 1950 mortality declines at normal rates in the one instance, but very rapidly in the other. A projection, accordingly, has been prepared in which the population of Burma in 1950 is estimated at 19,577,000 (as in Section II), and expectation of life at birth in 1945-1950 at 37.5 years, and fertility as in the other projections for Burma (Sections I and II); but, whereas in Section II expectation of life rises by 5 years every 5 years, in the present instance it is assumed to rise by $2\frac{1}{2}$ years every 5 years, i.e., at the normal rate. The results are shown in Table 23; these are comparable with the Burma projection of Section II tabulated in Annex III.

Comparable projections have also been made for the assumption of future fertility declines, as shown in Table 24. These projections, rather than the ones of Section III (and Annex IV), should be examined together with the projection of Section II (Annex III).

Table 23

BURMA, CONSERVATIVE PROJECTION, ASSUMING THE SAME MORTALITY AS IN THAILAND, AND CONSTANT FERTILITY

	Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 118	3 475	3 935	4 475	5 093	5 823	6 719
5-9	2 572	2 838	3 198	3 657	4 196	4 815	5 548
10-14	2 279	2 498	2 767	3 127	3 586	4 124	4 744
15-19	2 011	2 215	2 436	2 703	3 064	3 522	4 061
20-24	1 709	1 931	2 135	2 356	2 626	2 986	3 444
25-29	1 447	1 618	1 846	2 052	2 275	2 544	2 905
30-34	1 294	1 363	1 534	1 770	1 976	2 200	2 472
35-39	1 055	1 211	1 285	1 456	1 699	1 907	2 133
40-44	1 020	979	1 133	1 211	1 382	1 632	1 840
45-49	884	932	904	1 055	1 136	1 306	1 560
50-54	740	789	844	826	972	1 057	1 223
55-59	512	640	692	751	743	882	996
60-64	396	423	536	589	649	649	778
65-69	520	303	330	426	476	533	540
70-74	165	172	212	235	311	354	404
75-79	82	95	102	129	147	198	232
80-84	35	36	44	49	64	75	104
85 and over	8	11	12	15	18	25	31
TOTAL	19 577	21 529	23 945	26 882	30 413	34 632	39 704
<i>Broad age groups (in thousands)</i>							
0-14	7 969	8 811	9 900	11 259	12 875	14 762	17 011
15-29	5 167	5 764	6 417	7 111	7 965	9 052	10 410
30-44	3 369	3 553	3 952	4 437	5 057	5 739	6 445
45-59	2 136	2 361	2 440	2 632	2 851	3 245	3 749
60-74	811	898	1 078	1 250	1 436	1 536	1 722
75 and over	125	142	158	193	229	298	367
TOTAL	19 577	21 529	23 945	26 882	30 413	34 632	39 704
<i>Per cent of total population</i>							
0-14	40.7	40.9	41.3	41.9	42.3	42.6	42.8
15-29	26.4	26.8	26.8	26.5	26.2	26.1	26.2
30-44	17.2	16.5	16.5	16.5	16.6	16.6	16.2
45-49	10.9	11.0	10.2	9.8	9.4	9.4	9.4
60-74	4.1	4.2	4.5	4.6	4.7	4.4	4.3
75 and over	0.6	0.7	0.7	0.7	0.8	0.9	0.9
TOTAL	99.9	100.1	100.0	100.0	100.0	100.0	99.8

2. Viet-Nam

The birth rate of Viet-Nam², estimated from certain pre-war data, is the lowest of any country in South-East Asia. There is no reason why it should not be. Each country has its distinctive culture, and so birth rates are not everywhere the same. However, since the dates to which the estimate refers, the country has passed through

² In this report Viet-Nam is understood to comprise both the northern and southern parts of the country.

a long period of severe disturbances. This makes it doubtful whether a pre-war estimate still applies to current and future conditions.

The direct effects of the disturbances in the period from 1945 to 1955 have been taken into account in the population projections discussed in the preceding sections. In particular, it has been assumed that mortality was temporarily high and birth rates were temporarily low, with consequent effects on the age structure of the population. Because of the relative birth deficit in

Table 24

BURMA, CONSERVATIVE PROJECTION, ASSUMING THE SAME MORTALITY AS IN THAILAND, AND DECLINING FERTILITY

	Both sexes							
	Moderate fertility decline				Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
Detailed age groups (in thousands)								
0-4	4 363	4 712	5 095	5 543	4 251	4 331	4 367	4 367
5-9	3 657	4 091	4 454	4 855	3 657	3 986	4 093	4 162
10-14	3 127	3 586	4 021	4 388	3 127	3 586	3 918	4 032
15-19	2 703	3 064	3 522	3 960	2 703	3 064	3 522	3 859
20-24	2 356	2 626	2 986	3 444	2 356	2 626	2 986	3 444
25-29	2 052	2 275	2 544	2 905	2 052	2 275	2 544	2 905
30-34	1 770	1 976	2 200	2 472	1 770	1 976	2 200	2 472
35-39	1 456	1 699	1 907	2 133	1 456	1 699	1 907	2 133
40-44	1 211	1 382	1 632	1 840	1 211	1 382	1 632	1 840
45-49	1 055	1 136	1 306	1 560	1 055	1 136	1 306	1 560
50-54	826	972	1 057	1 223	826	972	1 057	1 223
55-59	751	743	882	966	751	743	882	966
60-64	589	649	649	778	589	649	649	778
65-69	426	476	533	540	426	476	533	540
70-74	235	311	354	404	235	311	354	404
75-79	129	147	198	232	129	147	198	232
80-84	49	64	75	104	49	64	75	104
85 and over	15	18	25	31	15	18	25	31
Total	26 770	29 927	33 440	37 378	26 658	29 441	32 248	35 052
Broad age groups (in thousands)								
0-14	11 147	12 389	13 570	14 786	11 035	11 903	12 378	12 561
15-29	7 111	7 965	9 052	10 309	7 111	7 965	9 052	10 208
30-44	4 437	5 057	5 739	6 445	4 437	5 057	5 739	6 445
45-49	2 632	2 851	3 245	3 749	2 632	2 851	3 245	3 749
60-74	1 250	1 436	1 536	1 722	1 250	1 436	1 536	1 722
75 and over	193	229	298	367	193	229	298	367
TOTAL	26 770	29 927	33 440	37 378	26 658	29 441	32 248	35 052
Per cent of total population								
0-14	41.6	41.4	40.6	39.6	41.4	40.4	38.4	35.8
15-29	26.6	26.6	27.1	27.6	26.7	27.1	28.1	29.1
30-44	16.6	16.9	17.2	17.2	16.6	17.2	17.8	18.4
45-59	9.8	9.5	9.7	10.0	9.9	9.7	10.1	10.7
60-74	4.7	4.8	4.6	4.6	4.7	4.9	4.8	4.9
75 and over	0.7	0.8	0.9	1.0	0.7	0.8	0.9	1.0
TOTAL	100.0	100.0	100.1	100.0	100.0	100.1	100.1	99.9

1945 to 1955, relatively reduced numbers of persons will enter the ages of potential parenthood in periods which follow 1960. The consequent effects on population growth have been calculated in the projections shown so far, it being assumed that the pre-war level of fertility was resumed immediately after 1955.

The latter assumption, however, may be incorrect. An alternative assumption, on the other hand, cannot be substantiated at the present time. Not enough time has passed since 1955, nor has enough detailed information become available, to test the validity of any new assumption. Consideration of some plausible alternative, nevertheless, is at least of speculative inter-

est, if only to provide a rough gauge of the extent to which the projections initially made may err. On hypothetical grounds, the errors in the assumed post-1955 level of fertility may be of two kinds:

(1) With the cessation of disturbances within the country, families temporarily separated have been reunited and persons temporarily prevented from marrying have done so. The result may very well be, in the years which follow 1955, a "post-war baby boom" not unlike those observed in many other countries.

(2) Living conditions in the country have been changed rather profoundly. Both the Governments have designed, and are executing, vigorous development pro-

grammes. The new processes may have considerable repercussions on the attitudes which govern marriage and the formation of families, though it cannot be said without more detailed knowledge of conditions whether birth rates tend to rise or fall as a result. The possibility of a fertility decline has already been envisaged in the projections presented in Section III. On the other hand, in the present state of ignorance of detailed conditions, the possibility of a lasting rise in fertility ought not to be discounted.

Both of these considerations have been combined in a new tentative assumption of possible future fertility trends. Thus, the effects have been calculated on an assumption that pre-war fertility will be exceeded by 15 per cent in the periods from 1955 to 1965, and by 10 per cent thereafter. This frankly arbitrary assumption is not altogether unreasonable, in so far as this trend bears some resemblance to the one observed in Ceylon during the 1930's, 1940's and 1950's.

The new projections are carried out by the modification of constant-fertility projections already made with the aid of a multiplication table, as explained in Section III. This device, however, did not suffice for a period longer than 20 years, i.e., from 1955 to 1975 in the present instance; a separate calculation was required to deter-

mine numbers of individuals aged 0-4 years in 1980. The multiplication table actually used is shown below (Table 25).

Table 25

MULTIPLICATION FACTORS APPLIED TO CONSTANT-FERTILITY PROJECTIONS OF VIET-NAM TO OBTAIN PROJECTIONS IN WHICH A MODIFIED FUTURE TREND OF FERTILITY IS ASSUMED (PER CENT OF ADDITIONAL NUMBERS OF SURVIVORS)

Age group	1960	1965	1970	1975	1980
0-4	+ 15	+ 15	+ 10	+ 10	x ^a
5-9	+ 15	+ 15	+ 10	+ 10
10-14	+ 15	+ 15	+ 10
15-19	+ 15	+ 15
20-24	+ 15

^a Determined in a separate calculation.

The procedure has been applied both to the conservative projection (assuming normal future decline in mortality), and to the low-mortality projection (assuming very rapid future decline in mortality). The results of these two modified projections are presented in Tables 26 and 27.

Table 26

VIET-NAM. NORMAL MORTALITY DECLINE AND HIGH FERTILITY

	Both sexes					
	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>						
0-4	2 968	5 534	6 102	6 195	6 404	7 360
5-9	2 820	2 731	5 142	5 722	5 858	6 102
10-14	3 154	2 749	2 670	5 043	5 624	5 772
15-19	2 950	3 073	2 687	2 617	4 953	5 538
20-24	2 589	2 843	2 974	2 610	2 550	4 842
25-29	2 255	2 473	2 732	2 871	2 529	2 481
30-34	1 952	2 150	2 370	2 631	2 777	2 457
35-39	1 677	1 852	2 053	2 276	2 540	2 692
40-44	1 426	1 581	1 759	1 960	2 185	2 450
45-49	1 196	1 329	1 485	1 663	1 865	2 091
50-54	984	1 094	1 226	1 381	1 557	1 758
55-59	787	876	984	1 113	1 264	1 436
60-64	600	670	756	859	982	1 125
65-69	436	477	542	621	714	826
70-74	282	312	348	402	468	547
75-79	149	171	194	222	262	312
80-84	60	71	83	99	117	141
85 and over	17	22	27	34	42	51
TOTAL	26 302	30 008	34 134	38 319	42 791	47 981
<i>Broad age groups (in thousands)</i>						
0-14	8 942	11 014	13 914	16 960	17 886	19 234
15-29	7 794	8 389	8 393	8 098	10 032	12 861
30-44	5 055	5 583	6 182	6 876	7 502	7 599
45-59	2 967	3 299	3 695	4 157	4 686	5 285
60-74	1 318	1 459	1 646	1 882	2 264	2 498
75 and over	226	264	304	355	421	504
TOTAL	26 302	30 008	34 134	38 319	42 791	47 981

Table 26 (continued)

	Both sexes					
	1955	1960	1965	1970	1975	1980
<i>Per cent of total population</i>						
0-14	34.0	36.7	40.8	44.3	41.8	40.1
15-29	29.6	28.0	24.6	21.1	23.4	26.8
30-44	19.2	18.6	18.1	17.9	17.5	15.8
45-59	11.3	11.0	10.8	10.8	11.0	11.0
60-74	5.0	4.9	4.8	4.9	5.3	5.2
75 and over	0.9	0.9	0.9	0.9	1.0	1.1
TOTAL	100.0	100.1	100.0	99.9	100.0	100.0

Table 27

VIET-NAM. LOW MORTALITY AND HIGH FERTILITY

	Both sexes					
	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>						
0-4	2 968	5 654	6 387	6 651	7 105	8 498
5-9	2 820	2 758	5 345	6 129	6 464	6 985
10-14	3 154	2 758	2 711	5 278	6 074	6 425
15-19	2 950	3 082	2 709	2 675	5 227	6 034
20-24	2 589	2 854	3 003	2 655	2 637	5 176
25-39	2 255	2 488	2 766	2 933	2 610	2 607
30-34	1 952	2 161	2 407	2 697	2 878	2 577
35-39	1 677	1 864	2 086	2 342	2 644	2 838
40-44	1 426	1 582	1 789	2 021	2 287	2 597
45-49	1 196	1 339	1 505	1 720	1 959	2 232
50-54	984	1 104	1 255	1 427	1 646	1 889
55-59	787	885	1 010	1 165	1 340	1 562
60-64	600	679	781	907	1 062	1 237
65-69	436	486	564	664	787	936
70-74	282	318	366	440	531	643
75-79	149	176	208	249	309	385
80-84	60	73	92	114	144	186
85 and over	17	22	29	41	54	72
TOTAL	26 302	30 283	35 013	40 108	45 758	52 879
<i>Broad age groups (in thousands)</i>						
0-14	8 942	11 170	14 443	18 058	19 643	21 908
15-29	7 794	8 424	8 478	8 263	10 474	13 817
30-44	5 055	5 607	6 282	7 060	7 809	8 012
45-59	2 967	3 328	3 770	4 312	4 945	5 683
60-74	1 318	1 483	1 711	2 011	2 380	2 816
75 and over	226	271	329	404	507	643
TOTAL	26 302	30 283	35 013	40 108	45 758	52 879
<i>Per cent of total population</i>						
0-14	34.0	36.9	41.3	45.0	42.9	41.4
15-29	29.6	27.8	24.2	20.6	22.9	26.1
30-44	19.2	18.5	17.9	17.6	17.1	15.2
45-59	11.3	11.0	10.8	10.8	10.8	10.7
60-74	5.0	4.9	4.9	5.0	5.2	5.3
75 and over	0.9	0.9	0.9	1.0	1.1	1.2
TOTAL	100.0	100.0	100.0	100.0	100.0	99.9

3. Singapore (fertility)

Most of the population of the small island of Singapore is confined to the city of Singapore. Because of widening contacts with almost every part of the world, the expansion of industrial and commercial activities, and the progress in health and literacy, rapid social changes in this area, even if not indicated at the moment, are possible. For these reasons, one may envisage the possibility of a particularly rapid fertility decline in this area.

A decline by 5 per cent annually of the initial level has occurred in Japan from 1947 to 1957. It is not altogether impossible that a similar phenomenon may also occur in Singapore. At this rate of decline, fertility will be reduced to 75 per cent of the initial (pre-1960) level by 1965, to 50 per cent by 1970, and to only 25 per cent by 1975. To assume a reduction to zero would be

absurd. Hence, in 1975-1980, fertility is here assumed to remain at a level equal to 25 per cent of the pre-1960 level. The following multiplication table, therefore, was applied (Table 28).

Table 28

MULTIPLICATION FACTORS APPLIED TO CONSTANT-FERTILITY PROJECTION OF SINGAPORE TO OBTAIN A PROJECTION IN WHICH AN EXTREMELY RAPID DECLINE OF FERTILITY IS ASSUMED (PERCENTAGE OF ESTIMATED FUTURE SURVIVORS WHO, ON THIS ASSUMPTION, WILL NOT BE BORN)

Age group	1965	1970	1975	1980
0-4	-12.5	-37.5	-62.5	-75
5-9 . . . . .	...	-12.5	-37.5	-62.5
10-14 . . . . .	...	...	-12.5	-37.5
15-19 . . . . .	...	...	...	-12.5

Table 29

SINGAPORE. ASSUMPTION OF EXTREMELY RAPID FERTILITY DECLINE AFTER 1960

	Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	175	257	291	294	253	195	169
5-9	121	173	249	285	289	250	194
10-14	112	123	172	249	284	288	250
15-19	99	117	123	172	248	284	288
20-24	89	107	115	122	170	247	282
25-29	84	100	107	115	121	170	246
30-34	79	91	98	105	113	121	168
35-39	76	83	90	96	104	112	119
40-44	69	77	81	88	95	102	110
45-49	54	67	74	78	85	92	99
50-54	39	51	64	71	74	82	89
55-59	27	36	48	59	66	70	77
60-64	18	24	32	42	53	60	64
65-69	11	16	21	27	36	46	52
70-74	5	9	11	16	21	29	38
75-79	3	3	6	8	11	15	21
80-84	1	1	2	3	5	7	9
85 and over	0	1	1	1	1	3	3
TOTAL	1 062	1 336	1 585	1 831	2 029	2 173	2 278
<i>Broad age groups (in thousands)</i>							
0-14	408	553	712	828	826	733	613
15-29	272	324	345	409	539	701	816
30-44	224	251	269	289	312	335	397
45-59	120	154	186	208	225	244	265
60-74	34	49	64	85	110	135	154
75 and over	4	5	9	12	17	25	33
TOTAL	1 062	1 336	1 585	1 831	2 029	2 173	2 278
<i>Per cent of total population</i>							
0-14	38.4	41.4	44.9	45.2	40.7	33.7	26.9
15-29	25.6	24.3	21.8	22.3	26.6	32.3	35.8
30-44	21.1	18.8	17.0	15.8	15.4	15.4	17.4
45-59	11.3	11.5	11.7	11.4	11.1	11.2	11.6
60-74	3.2	3.7	4.0	4.6	5.4	6.2	6.8
75 and over	0.4	0.4	0.6	0.7	0.8	1.2	1.4
TOTAL	100.0	100.1	100.0	100.0	100.0	100.0	99.9

The results of this assumption are presented in Table 29. It is noteworthy that, even on this extreme assumption, population will not cease to grow prior to 1980, when it will be more than double the 1950 population. However, the age structure of the population would then be considerably modified.

4. Malaya and Singapore (migration)

From available census data and statistics of births, deaths and international migration, it has been inferred that an unrecorded movement of migrants from Malaya to Singapore has occurred in recent years. On an

Table 30
SURVIVORS AND OFFSPRING OF 12 000 ANNUAL MIGRANTS, 1955-1980

	1955	1960	1965	1970	1975	1980
<i>Males (detailed age groups, in thousands)</i>						
0-4	0	2	6	13	20	26
5-9	0	2	4	7	14	21
10-14	0	2	4	5	9	16
15-19	0	5	7	9	10	14
20-24	0	8	13	15	17	18
25-29	0	9	17	22	24	25
30-34	0	7	16	24	28	30
35-39	0	4	10	19	27	31
40-44	0	2	6	12	21	28
45-49	0	1	3	7	13	21
50-54	0	0	2	4	7	13
55-59	0	0	0	1	3	6
60-64	0	0	0	0	1	3
65-69	0	0	0	0	0	1
70 and over	0	0	0	0	0	0
TOTAL	0	42	88	138	194	253
<i>Females (detailed age groups, in thousands)</i>						
0-4	0	2	5	13	19	25
5-9	0	2	4	7	14	20
10-14	0	2	4	5	9	16
15-19	0	2	4	5	7	11
20-24	0	3	4	6	8	10
25-29	0	3	6	7	9	11
30-34	0	2	5	8	9	11
35-39	0	1	3	6	9	11
40-44	0	1	3	4	7	9
45-49	0	1	1	4	5	7
50-54	0	0	1	1	4	5
55-59	0	0	0	1	1	3
60-64	0	0	0	0	1	1
65-69	0	0	0	0	0	1
70 and over	0	0	0	0	0	0
TOTAL	0	19	40	67	102	141
<i>Both sexes (broad age groups, in thousands)</i>						
0-14	0	12	27	50	85	124
15-29	0	30	51	64	75	89
30-44	0	17	43	73	101	120
45-59	0	2	7	18	33	55
60 and over	0	0	0	0	2	6
TOTAL	0	61	128	205	296	394

average, there appears to have been an annual balance of 12,000 immigrants in Singapore in excess of those migrants who returned to Malaya. This movement has been taken into account in the population estimates for 1950 and 1955, on which are based the population projections for the two areas presented so far. No migration assumptions, however, have been made in any of the projections for years later than 1955.

The future volume of migration into and out of Singapore may fluctuate widely, depending on the city's prosperity and economic growth, on economic and social conditions in areas whence migrants originate, and on unpredictable changes in legislation. One

simple assumption is that movements from Malaya to Singapore may continue to leave an annual net balance of 12,000 migrants in Singapore. The effects of such an assumption can be calculated, but can be used flexibly. Thus, should it be assumed that future migratory balances will tend to be twice as large, then twice the calculated effects may be applied to the projections in which migration had been left out of account.

As regards the migrant population itself, it has been simply assumed that it will be subject to a constant low level of mortality, and that its level of fertility will be the same as that of the population of Malaya. As migration continues at the given volume, while migrants

Table 31
SINGAPORE. CONSERVATIVE PROJECTION,
ASSUMING CONTINUED ANNUAL IMMIGRATION OF 12 000

	<i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	175	257	295	347	430	559	725
5-9	121	173	253	293	344	427	557
10-14	112	113	176	257	294	347	431
15-19	99	117	130	183	262	301	354
20-24	89	107	126	139	191	272	310
25-29	84	100	119	138	150	203	282
30-34	79	91	107	126	145	158	209
35-39	76	83	95	109	129	148	161
40-44	69	77	84	97	111	130	147
45-49	54	67	76	82	96	110	127
50-54	39	51	64	74	79	93	107
55-59	27	36	48	59	68	74	86
60-64	18	24	32	42	53	62	68
65-69	11	16	21	27	36	46	54
70-74	5	9	11	16	21	29	38
75-79	3	3	6	8	11	15	21
80-84	1	1	2	3	5	7	9
85 and over	0	1	1	1	1	3	3
TOTAL	1 062	1 336	1 646	2 001	2 426	2 984	3 689
<i>Broad age groups (in thousands)</i>							
0-14	408	553	724	897	1 068	1 333	1 713
15-29	272	324	375	460	603	776	946
30-44	224	251	286	332	385	436	517
45-59	120	154	188	215	243	277	320
60-74	34	49	64	85	110	137	160
75 and over	4	5	9	12	17	25	33
TOTAL	1 062	1 336	1 646	2 001	2 426	2 984	3 689
<i>Per cent of total population</i>							
0-14	38.4	41.4	44.0	44.8	44.0	44.7	46.4
15-29	25.6	24.3	22.8	23.0	24.9	26.0	25.6
30-44	21.1	18.8	17.4	16.6	15.9	14.6	14.0
45-59	11.3	11.5	11.4	10.7	10.0	9.3	8.7
60-74	3.2	3.7	3.9	4.2	4.5	4.6	4.3
75 and over	0.4	0.4	0.5	0.6	0.7	0.8	0.9
TOTAL	100.0	100.1	100.0	99.9	100.0	100.0	99.9

advance in age, some die, and others bear offspring, the direct demographic effects of the migration will be those presented in Table 30. The effect in the course of time is larger than the sum of migratory balances. Thus, an annual balance of 12,000 results in a total balance of 300,000 at the end of 25 years; however, as a result of intervening births and deaths, a population of 394,000 will be alive at that time.

The effect of such continuing migration on the population of Singapore can be considerable. This is shown in Table 31 where the migration scheme of Table 30 is applied directly to the population projection of Singapore, made on conservative assumptions. Thus,

instead of 3,295,000 the population of Singapore may attain, by 1980, a figure of 3,689,000 or about 12 per cent more. In the space of 30 years, the 1950 population of Singapore may, conceivably, almost quadruple.

The effect of continuing emigration on the population of Malaya (according to the conservative projection) is relatively not so great (See Table 32.) Instead of 14,008,000, the 1980 population of Malaya would then still amount to 13,614,000, i.e., only about 3 per cent less. Population growth in Malaya will continue to be very rapid, even if Singapore grows at an extraordinary rate through migration from Malaya.

Table 32
MALAYA. CONSERVATIVE PROJECTION,
ASSUMING CONTINUED ANNUAL EMIGRATION OF 12 000

	<i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	875	1 137	1 262	1 496	1 790	2 209	2 736
5-9	690	824	1 079	1 207	1 441	1 737	2 157
10-14	635	671	808	1 061	1 192	1 425	1 720
15-19	497	617	654	791	1 043	1 173	1 406
20-24	383	468	592	631	768	1 017	1 148
25-29	342	349	444	565	606	741	992
30-34	328	311	331	424	544	586	722
35-39	317	305	297	317	410	529	571
40-44	302	296	291	284	306	396	516
45-49	251	283	282	278	271	293	385
50-54	199	232	267	266	264	259	282
55-59	138	181	213	247	250	249	246
60-64	98	121	161	191	223	226	228
65-69	69	81	101	136	164	193	198
70-74	38	54	62	78	107	130	156
75-79	35	32	35	42	54	74	92
80-84	12	17	14	19	23	31	44
85 and over	12	17	11	8	10	11	15
TOTAL	5 211	5 990	6 904	8 041	9 466	11 279	13 614
<i>Broad age groups (in thousands)</i>							
0-14	2 200	2 632	3 149	3 764	4 423	5 371	6 613
15-29	1 222	1 434	1 690	1 987	2 417	2 931	3 546
30-44	947	912	919	1 025	1 260	1 511	1 809
45-59	588	696	762	791	785	801	913
60-74	205	256	324	405	494	549	582
75 and over	49	60	60	69	87	116	151
TOTAL	5 210	5 990	6 904	8 041	9 466	11 279	13 614
<i>Per cent of total population</i>							
0-14	42.2	43.9	45.6	46.8	46.7	47.6	48.6
15-29	23.5	23.9	24.5	24.7	25.5	26.0	26.0
30-44	18.2	15.2	13.3	12.7	13.3	13.4	13.3
45-59	11.3	11.6	11.0	9.8	8.3	7.1	6.7
60-74	3.9	4.3	4.7	5.0	5.2	4.9	4.3
75 and over	0.9	1.0	0.9	0.9	0.9	1.0	1.1
TOTAL	100.0	99.9	100.0	99.9	99.9	100.0	100.0

Section V

SOME IMPLICATIONS OF SOUTH-EAST ASIAN POPULATION TRENDS

A. General considerations

The two outstanding conclusions which emerge from the foregoing are these: the populations in South-East Asian countries are predominantly very young; and they tend to increase very rapidly.

These two findings are not new. Youthfulness and growth have characterized the same populations also in the past. And yet there is a difference in degree: the proportions of children and adolescents in the total population now tend to rise, though not by much; at the same time, the rate of population growth is greatly augmented, from between one and two per cent per annum in past decades to nearly 3 per cent per annum in the decades to come. The phenomenon of population growth, though not new, now acquires an unprecedented intensity.

Since growth has also occurred in the past, much is to be learned from a study of how the peoples of South-East Asia have managed to find sustenance for ever increasing numbers. Since at least the most essential adjustments could be made in the past, it is highly probable that this remains possible also in the future, unless a point is reached where every resource has been exhausted. But, if past adjustments have been difficult, adjustments of the same kind will run into increasing difficulties as the tempo of population growth is speeded up.

Sometimes population growth aids economic growth. In sparsely settled areas, e.g., in British Borneo, costs of transportation and various overheads are lowered, the division of labour increases, and markets are organized more efficiently as population becomes larger. Also, once a certain threshold of industrial development has been attained, further investments are stimulated by an expectation of increasing returns in a widening market. The structure of the economy then also undergoes a change. There is the need to orient economic and social development so that population growth, instead of being a drag, becomes a positive stimulus in bringing about a rising level of living while preserving the necessary social cohesion.

The circumstances under which an advantage is derived from population growth cannot be determined without very detailed study of each particular situation. That South-East Asian populations now tend to grow much faster than ever before is, for all practical purposes, fact. This makes it imperative to undertake all those efforts which help to harness progress to growth. The need for the requisite studies in a great variety of fields is evident. In the following paragraphs a few pertinent

facts will be briefly examined, although many of the statistics that are now available are not comparable from one country to another, because of variations in their definitions. The few facts briefly considered merely emphasize the need for more detailed studies.

1. POPULATION DENSITY

Wedged between the population giants of China and India, the South-East Asian region does not seem, at first glance, to be very heavily populated (see Figure III). Yet even at the level of national entities, a great variety of population densities appears within the region (see Table 33). The sharpest contrasts are between some of the smaller areas. Since rapid growth is to be expected in every area, the diversity will be no less in 1980 than it was in 1950. Apart from Singapore, there were in 1950 two countries with average densities of less than 10, and two with average densities of more than 100 persons per square kilometre; in 1980 there will probably still be one area with a density smaller than 10 while in five areas the density will exceed 100. As will be shown further on, even greater disparities are found in the population density of regions contained within particular countries.

Table 33

AREA OF SOUTH-EAST ASIAN COUNTRIES IN SQUARE KILOMETRES AND ESTIMATED POPULATION DENSITIES IN 1920, 1950 AND 1980

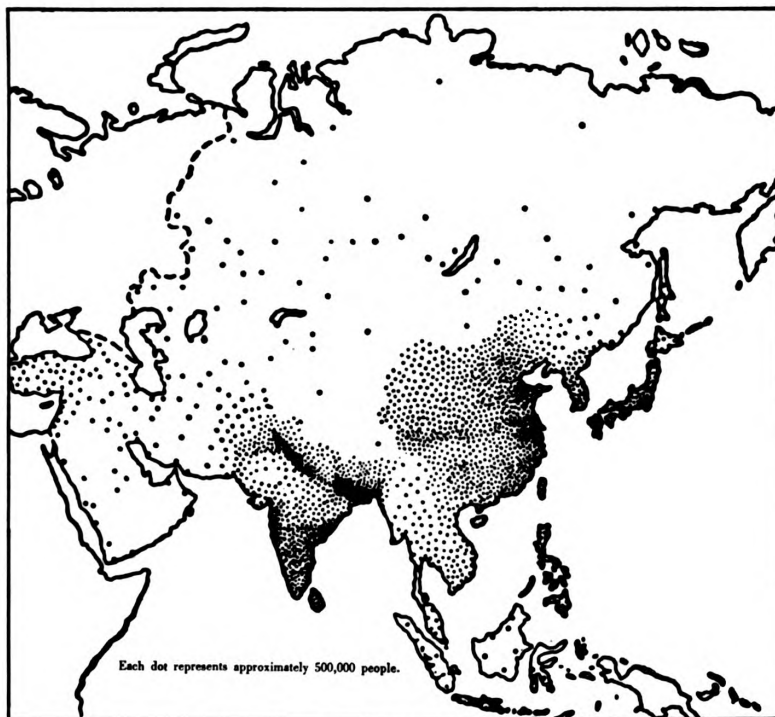
Country	Area (square kilometres)	Inhabitants per square kilometre		
		1920	1950	1980
British Borneo	203 791	3 ^a	5	9
Burma	667 950	20	27	48
Cambodia	175 000	13 ^a	22	50
Ceylon	65 610	68	115	279
China (Taiwan)	35 961	104	208	592
Indonesia	1 491 562	35	50	94
Laos	237 000	4 ^a	5	11
Malaya	131 287	22	40	107
Philippines	299 404	36	67	170
Portuguese Timor	14 925	30 ^a	29	53
Singapore	581 ^b	673	1 824	5 663
Thailand	513 000	18	36	81
Viet-Nam ^c	329 600	47 ^a	79	137
TOTAL	4 165 150	28	45	92

^a Rough estimate.

^b Excluding Christmas Island, whose population is very small.

^c In this report Viet-Nam is understood to comprise both the northern and southern parts of the country.

Figure III
ASIA. DISTRIBUTION OF POPULATION



Adapted from L.D. Stamp, *Asia*. London, Methuen & Co. Ltd., 9th edition 1957, p. 52.

2. ECONOMICALLY ACTIVE POPULATION

The percentage of the population participating in economic activities varies with the customary age of entry into and withdrawal from the labour force, and with the age composition of the population. It is illuminating to examine available census statistics for the male population aged 10 years and over.¹ The average of census results obtained prior to, and since, 1931 for six areas of South-East Asia and for India and Japan are brought together in Table 34, below.

One fact to be noted is that in all areas the percentage of economically active males has been declining. Both before and since 1931, the average level of male economic activity in areas of South-East Asia has been similar to that in India. In Japan, it has been lower, and has declined further.

The decline in the percentage is caused largely by an extension of formal school education beyond the age of 10 years, and to some extent by the earlier retirement from economic activity of persons of advanced ages in urban or industrial surroundings. Census criteria may also have varied with time, it being increasingly recog-

¹ For the female segment, useful comparison is rendered difficult by variations in census definitions relating to housewives, especially in peasant households; the customary distinctions between "economic" activities and "household" activities are also subject to variations. For children aged less than 10 years, little contribution to economic output can be expected in any case.

nized that the contribution of some of the children, or some of the old persons, to economic output is relatively slight. The relatively high percentages noted in Malaya have also been partly affected by immigration, most immigrants usually being young adults in the best working ages.

From an economic point of view, the lessened contribution of children and aged persons to the labour force entails a smaller loss of output than the numbers of individuals would seem to indicate. The change can be of great social significance, especially when an opportunity is given to youth to extend its education; its eventual participation in the productive process is then likely to be far more effective.

By and large, the level of 75 per cent now appears fairly typical for the extent to which males aged 10 years and over are economically active in South-East Asian countries. In technologically advanced countries, e.g., Japan, the percentage tends to be somewhat lower.

The populations of South-East Asia gain their livelihood partly in a subsistence economy and partly in a cash economy. The extent to which cash incomes have replaced incomes in kind is difficult to determine, but a rough indication is obtained by comparing numbers returned as "wage and salary earners" in the censuses with those reported as "employers and workers on own account"; the latter, for the most part, are peasants,

Table 34

PERCENTAGE OF MALE POPULATION AGED 10 YEARS AND OVER WHO ARE ECONOMICALLY ACTIVE (AVERAGES OF CENSUS RESULTS), PRIOR TO, AND SINCE 1931 IN AREAS OF SOUTH-EAST ASIA, INDIA AND JAPAN

Country	Censuses taken prior to 1931		Censuses taken since 1931	
	Dates of censuses	Average of results (per cent)	Dates of censuses	Average of results (per cent)
Burma	1901, 1911, 1921	78	1931	76
Ceylon	1901, 1911, 1921	85	1946	76
China (Taiwan)	1905, 1915, 1920, 1930	85	1940	79
Malaya	1921	89	1931, 1947	81
Philippines	—	—	1939, 1948, 1956 ^a	74
Thailand	—	—	1937, 1947	74
India	1901, 1911, 1921	84	1931, 1951	76
Japan	1920, 1930	80	1940, 1947, 1950, 1955	73

^a Household survey, not a census.

craftsmen, and their assistants² who are not remunerated in the form of cash; agricultural day-labourers, on the other hand, are earners of wages. According to censuses taken in 1946 and 1948, the ratio of wage earners to workers on own account was 60 : 40 in Ceylon, 53 : 47 in the Philippines, and 51 : 49 in Malaya; a ratio possibly more typical for some of the larger countries was that noted in Thailand, namely 23 : 77. By contrast, in Singapore the ratio was 74 : 26, wages and salaries being the dominant form of income in that urban territory.

3. MAIN BRANCHES OF ECONOMIC ACTIVITY

It has become customary to distinguish three main branches of economic activity, variously defined, comprising the following sectors:

- I. Agriculture, forestry and fishing (primary activities);
- II. Manufactures, building and handicrafts (secondary activities); and
- III. Transport, communications, commerce and services (tertiary activities).

The proportions of economically active males (aged 10 and over) in these three branches of activity are summarized in Table 35 below.

Agriculture is the principal economic activity in South-East Asia. Secondary activities in all South-East Asian areas (other than Thailand) and India engage only about 10 per cent of the labour force. Manufactures are but feebly represented and have shown little change from earlier in this century until more recent dates. By contrast, the proportion in this category for Japan was recorded as 23 per cent in the year 1920, rising to a maximum of 33 per cent in 1940.

There are some variations, on the other hand, in the percentages engaged in the primary and tertiary sectors

² Excluding "family helpers", enumerated as a separate category. The relevance of conventional census definitions of occupational status to South-East Asian conditions may, however, be questioned.

respectively. The case of Thailand seems rather odd, but there are reasons to doubt whether comparable criteria have been employed here. At the other extreme, a much smaller and diminishing segment of the labour force of Ceylon has been classed under primary activities. There may be various occupations which tend to be classified as agricultural in the census of one country while another country regards them as services.

However that may be, time series for any one country are likely to be more comparable. A decline in the percentage of primary activities is to be noted in Ceylon, China (Taiwan), and Japan; except for Japan, this decline is associated with a commensurate increase in the percentage of tertiary activities. In Malaya, Thailand and India, the composition of the labour force seems hardly to have changed at all, so far as is indicated by the summary of available data. Nevertheless, significant changes may have recently begun with effects to be revealed in future census results.

By and large, primary activities typically engage about 70 per cent of the labour force in South-East Asian countries,³ about 10 per cent being in secondary and about 20 per cent in tertiary employments. The same situation is also found in India. By contrast, in Japan the proportions in the three sectors are now almost equal. While admitting that there are variations among the countries of South-East Asia, one may doubt whether census criteria have everywhere been the same. Thailand may not be so extremely agrarian as the data suggest; in Ceylon, part of the activities listed as tertiary may be in the nature of a disguised under-employment of rural workers.⁴ The fairly large sector of tertiary activities in Malaya indicated by the data may be more accurate because of the considerable role played by commerce and transportation.

³ 68 per cent in Indonesia in 1930 (64 per cent in Java and Madura, and 76 per cent in other islands), according to the *FAO Yearbook of Food and Agricultural Statistics, 1948*, vol. 1, p. 212.

⁴ In no other country has such a large proportion of tertiary activities been noted in conjunction with such a small proportion of secondary activities.

Table 35

PERCENTAGE COMPOSITION OF MALE LABOUR FORCE BY THREE MAIN BRANCHES OF ECONOMIC ACTIVITY, PRIOR TO AND SINCE 1931, IN AREAS OF SOUTH-EAST ASIA, INDIA AND JAPAN (AVERAGES OF CENSUS RESULTS)

Country	Dates of censuses	Per cent of labours force in economic sectors		
		Primary	Secondary	Tertiary
<i>Burma</i>				
Prior to 1931	1901, 1911, 1921	68	7	25
Since 1931	1931	73	8	19
<i>Ceylon</i>				
Prior to 1931	1901, 1911, 1921	65	9	26
Since 1931	1946	51	10	39
<i>China (Taiwan)</i>				
Prior to 1931	1905, 1911, 1920, 1930	69	9	22
Since 1931	1940	63	12	25
<i>Malaya</i>				
Prior to 1931	1921	61	12	27
Since 1931	1931, 1947	60	11	29
<i>Philippines</i>				
Prior to 1931	—	—	—	—
Since 1931	1939, 1948, 1956 *	72	10	18
<i>Thailand</i>				
Prior to 1931	1929	84	2	14
Since 1931	1937, 1947	84	3	13
<i>India</i>				
Prior to 1931	1901, 1911, 1921	70	11	19
Since 1931	1931, 1951	70	11	19
<i>Japan</i>				
Prior to 1931	1920, 1930	45	24	31
Since 1931	1940, 1947, 1950, 1955	37	30	33

* Household survey, not a census.

4. LAND USE

Agriculture, in a wider sense, is a more dominant activity than most of the preceding figures indicate. Not only the peasants but many other persons depend for their living on the fruits of the land. Agrarian products furnish the livelihood of workers engaged in their transportation and marketing, the manufacture and upkeep of agricultural buildings and implements, the industrial processing of food, and foreign trade. Despite this heavy dependence on the produce of the soil, not all land in South-East Asia is being cultivated, and some of it only by the most extensive methods.

Estimates of land areas put to different uses are being compiled by the Food and Agriculture Organization. The attempt at obtaining comparable estimates is only partly successful, as witnessed by numerous footnotes and by frequent sharp revisions of some figures. The latest estimates, received in the years from 1952 to 1955, are presented in Table 36.

According to these, between one-quarter and one-twentieth of land areas are used for field crops and tree crops; high percentages of such land have been estimated

notably for Ceylon, China (Taiwan) and the Philippines, and low percentages for British Borneo and Laos. There are, of course, great variations in the intensity of land use, depending on whether irrigation or dry farming, double cropping, single cropping or shifting agriculture is being practised. Lands under pasture, though not reported for all countries, are generally not of great extent. In all countries of the region, between one-half and two-thirds of the land is forested, though only small parts of the forest reserves are actually exploited. For some countries, considerable areas of additional potentially productive land have been estimated, but there may be wide variations in the qualities of such land. Part of the forest cover might, under certain conditions, be cleared and provide additional sources for extended agricultural land use. It is known, however, that lands denuded of tropical forest are often poor in vegetable matter and, unless suitably irrigated and fertilized, yield rather meagre returns in field crops.

5. MAN-LAND RATIOS (TENTATIVE MEASURE)

Agriculture being the dominant occupation, it is of interest to observe how the increasing numbers of peas-

Table 36
LAND USE IN SOUTH-EAST ASIAN COUNTRIES (PERCENTAGE OF TOTAL AREA) ^a

Country	Arable land and land under tree crops	Permanent meadows and pastures	Forested land	Unused but potentially productive	Other land
British Borneo					
Brunei	7	—	67	1	25
North Borneo	3	2	80	1	14
Sarawak	28 ^b	—	71	—	1
Burma	13 ^{c d}	—	58	11	18
Cambodia	17	3	46	29	5
Ceylon	23 ^b	—	54	18	5
China (Taiwan)	24	2	49	—	25
Indonesia	12 ^b	—	61	—	27
Laos	4	4	60	13	19
Malaya	17 ^e	—	74	6	3
Philippines	20	4	53	19	4
Thailand	15 ^b	—	63	—	22
Viet-Nam	14 ^b	—	41	5	40

^a Source: FAO *Yearbook of Food and Agricultural Statistics, 1956*, vol. X, part 1, pp. 5-6.
^b Total agricultural area (i.e., including meadows and pastures).
^c Areas of Putao, Chin Hills, Maga Hills, Shan States and Karenni are not included.
^d Agricultural land used for more than one crop during the year has been counted twice.
^e Including a provisional figure for rubber small-holdings.

ants⁵ have been accommodated on the available agricultural land. Land shortage and rural poverty have been noted for a long time; nevertheless, the problem raised by increasing rural populations has continuously been solved in various ways.

To examine this question, however tentatively, two series of estimates are required: a time-series of the numbers of males actively engaged in agriculture; and a corresponding series of the hectares of cropped land.

The first series has been calculated as follows: (a) for all countries, it has been assumed that roughly 75 per cent of the males aged 10 years and over, at any one time, are effectively in the labour force; and (b) for Burma, the Philippines, Thailand and India, it has been assumed that 70 per cent of the economically active males were engaged in agriculture; for Malaya, the proportion was assumed to be 60 per cent; for Ceylon, China (Taiwan) and Japan the percentages actually recorded in censuses were taken into consideration.

It was more difficult to establish the second series, relating to cultivated land areas. Time series of cultivated areas are rarely published for any one country, which necessitates a thorough search for isolated figures relating to different years. Furthermore, there are variations in definition, some data referring to areas actually cultivated, others to cultivable areas. Finally, the distinction between cultivated and harvested areas is a source of confusion, especially in South-East Asia, where interspersed cultivation and double cropping are not uncommon. To circumvent some of these complications, compilations were made of figures relating to cropped areas for each major agricultural product,

⁵ Since populations have been increasing rapidly, a constant or slowly declining proportion of agriculturists implies considerable increases in their absolute numbers.

such as rice, maize, soya beans, coffee, tea, rubber, etc.⁶

Relating the two series, one on males active in agriculture, the other on cropped areas, one obtains the man-land ratios presented in Table 37.

The following observations can be made:

- (1) Prior to 1940, man-land ratios in each country have been nearly constant;⁷
- (2) Nevertheless, there were sharp differences between one country and another;
- (3) Significant changes have occurred since the 1940's.

The recent changes can best be summarized by comparing the averages of figures available for all periods up to 1940 with the averages for the two most recent periods (1946-1950 and 1951-1955), as is done in Table 38 below, the areas of South-East Asia being ranked in the order of their pre-1940 man-land ratios. Burma, formerly holding first place, has fallen behind Malaya and Thailand. In the Philippines the ratio has fallen, in Thailand it has risen, with consequent change in ranking. Similar changes arise in the relative positions of Indonesia (Java and Madura) and of Ceylon.

⁶ Combining these several figures, series of total cropped areas were obtained. But these series are somewhat short of the facts since a variety of relatively less important crops had to be left out of account. In instances where more comprehensive statistics on cropped land were also available, the figures compiled from the detailed crops could be compared and the extent of their deficiency could be examined. On the whole, those areas have been omitted which are planted under fodder crops, and certain pulses and vegetables. Despite this deficiency, the series which have been calculated appear to be fully comparable in time, and from country to country. The comparison is mainly one of areas in which cereal and commercial crops have been harvested.

⁷ With the exception of Malaya, where under the influence of rapidly changing economic conditions, the ratio rose from 1.42 in 1921-1925 to 1.94 in 1931-1935.

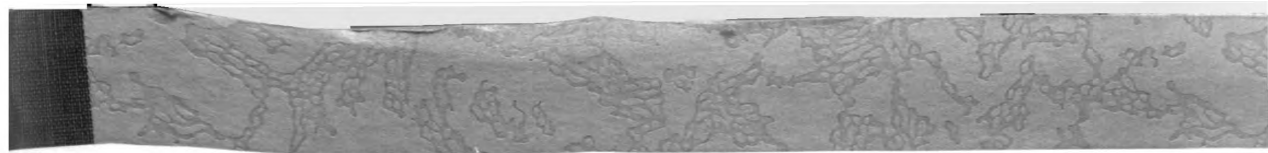


Table 37

HECTARES OF AGRICULTURAL CROPPED AREAS PER MALE ACTIVELY ENGAGED IN AGRICULTURE, 1901-1955, IN AREAS OF SOUTH-EAST ASIA, INDIA AND JAPAN

Country	1901-1905	1906-1910	1911-1915	1916-1920	1921-1925	1926-1930	1931-1935	1936-1940	1941-1945	1946-1950	1951-1955
Burma	2.15	2.11	2.09	2.06	2.10	2.19	2.20	2.05	1.60	1.32	1.40
Ceylon	0.87	0.88	0.88	0.88	0.93	0.99	1.01	1.01	1.02	0.95	0.92
China (Taiwan)	—	1.21	1.20	1.20	1.22	1.19	1.20	1.17	0.97	1.02	1.07
Indonesia (Java and Madura)	—	1.05	1.08	1.11	1.11	1.10	1.09	1.10	0.71	0.88	0.90
Malaya	—	—	—	—	1.42	1.58	1.94	2.00	—	1.91	1.83
Philippines	—	—	1.56	1.55	1.65	1.61	1.42	1.35	1.02	1.11	1.31
Thailand	—	—	1.30	1.38	1.43	1.35	1.30	1.18	1.26	1.53	1.67
India	—	—	1.68	1.69	1.67	1.63	1.58	1.52	1.44	1.32	1.46
Japan	0.78	0.78	0.83	0.86	0.83	0.83	0.84	0.90	0.80	0.66	0.73

The comparative stability of man-land ratios up to 1940 reflects largely a stability in techniques and in customary property and work relations. Under a given set of conditions, peasants were able to earn a living from bits of land of a given size, there being no tendency either to increase or to decrease the units. This set of conditions has differed greatly from one country to another, in a manner which cannot be accounted for simply, because a great variety of cultural factors has determined these several manners of living. Relative stability has been upset by the events of the Second World War, favourably in some instances and unfavourably in others. If the statistics can be trusted, the way of life in these countries is now changing more substantially than it had in the past.

Problems of various kinds must be overcome to accommodate increasing numbers of peasants to the areas within which crops can be raised. Adaptive changes have occurred, and are occurring, which the man-land ratios do not reveal. Apart from changes of agricultural technique, the following accommodations are possible:

- (a) An extension of cultivation to new lands;
- (b) An extension of double-cropping within areas already cultivated;
- (c) An extension of exportable cash crops, e.g., crops raised in plantations;
- (d) A transfer of workers from agricultural to other activities.

In Burma until recently a continuous expansion of cultivated land had nearly kept pace with the increase in population. Double-cropping has been considerably extended in Java and Madura, and recently even more in China (Taiwan). Plantation crops have gained much importance in the economies of Ceylon, Malaya, and Indonesia, though in the latter the output of such crops has recently been much curtailed. In Japan, large segments of the rural population have moved into industrial and service occupations, mostly in the cities; a transfer from agricultural to service employments also seems indicated in the statistics for Ceylon.

6. RICE PRODUCTION

Generally between one-third and two-thirds of the arable land are cropped in rice, which is the staple food. Other food crops, including maize, soya beans and tuber roots have gained in importance in certain areas. Apart from food, large areas of Malaya and Ceylon are planted with rubber and considerable areas in Ceylon with tea; non-food crops including sugar cane and fibres are of some importance also in a few other countries. The ample fish resources of the seas are utilized only to a slight extent.

Statistics on the areas in which paddy rice was harvested (double-cropped areas being counted twice) and the yield per hectare are assembled in Table 39. Again, for a variety of reasons, the figures are not comparable, but a few conclusions can be made.

Table 38

PRE-WAR AND POST-WAR AVERAGES OF MAN-LAND RATIOS, AND COMPARISON OF THE TWO, FOR AREAS IN SOUTH-EAST ASIA, INDIA AND JAPAN

Country	Pre-war averages (periods up to 1940)	Post-war averages (1946-1955)	Post-war, as percentage of pre-war
Burma	2.12	1.36	64
Malaya	1.97 ^a	1.89	96
Philippines	1.52	1.21	80
Thailand	1.32	1.60	121
China (Taiwan)	1.20	1.04	87
Indonesia (Java and Madura)	1.09	0.89	82
Ceylon	0.93	0.94	101
India	1.63	1.39	85
Japan	0.83	0.70	84

^a 1931-1940 only.

But, as is suggested by the comparative figures for India and Japan, the man-land ratio provides no indication of the level of rural prosperity which can be attained. Though raising crops on only one-half the average size of plots, Japanese peasants are known to be more efficient and more prosperous than Indian peasants.

Table 39

AREAS OF RICE HARVESTED, PRODUCTION OF RICE AND YIELD PER HECTARE
IN THE COUNTRIES OF SOUTH-EAST ASIA, 1909-1955

Country	1909-1913 ^a	1922-1925 ^a	1934-1938 ^b	1948-1952 ^b	1954-1955 ^b
<i>Area in rice (thousands of hectares)</i>					
Burma	4 000 ^c	4 431 ^c	4 931	3 758	3 950
Cambodia	3 460 ^k	4 086 ^k	784	1 127	1 076
Ceylon	281	319	345	411 ^d	503
China (Taiwan)	478	525	666 ^e	762	764
Indonesia					
Java and Madura	2 409 ^f	3 334	3 843	3 762	4 174
Other islands	—	—	—	2 114	2 408
Laos	3 460 ^k	4 086 ^k	424	825	550
Malaya	56 ^g	257 ^h	298	343	450
Philippines	1 114 ⁱ	1 700	1 990	2 318	2 699
Thailand	1 903 ^j	2 707	3 040	5 211	4 962
Viet-Nam	3 460 ^k	4 086 ^k	4 382	—	2 150 ^l
<i>Production of rice (Thousands of metric tons)</i>					
Burma	—	—	6 971	5 309	5 836
Cambodia	5 388 ^k	5 599 ^k	767	1 372	975
Ceylon	226	239	300	468 ^d	695
China (Taiwan)	813	1 032	1 642 ^e	1 682	2 058
Indonesia					
Java and Madura	4 068 ^f	4 957	5 847	5 894	7 062
Other islands	—	—	—	3 547	4 370
Laos	5 388 ^k	5 599 ^k	297	540	455
Malaya	59 ^g	272 ^h	513	635	670
Philippines	820 ⁱ	1 921	2 179	2 767	3 081
Thailand	2 850 ^j	4 684	4 357	6 845	6 710
Viet-Nam	5 388 ^k	5 599 ^k	5 434	—	2 669 ^l
<i>Rice yield (100 kg per hectare)</i>					
Burma	—	—	14.1	14.1	14.8
Cambodia	15.6 ^k	13.7 ^k	13.1	12.2	9.4
Ceylon	8.0	7.5	8.7	11.4 ^d	13.8
China (Taiwan)	17.0	19.7	24.6 ^e	22.1	27.0
Indonesia					
Java and Madura	16.9 ^f	14.9	15.2	15.7	17.0
Other islands	—	—	—	16.8	18.2
Laos	15.6 ^k	13.7 ^k	7.0	6.4	8.2
Malaya	10.6 ^g	10.6 ^h	17.2	18.5	19.2
Philippines	7.3 ⁱ	11.3	10.9	11.9	12.0
Thailand	15.0 ^j	17.3	14.3	13.1	13.4
Viet-Nam	15.6 ^k	13.7 ^k	12.4	—	12.4 ^l

^a From: International Institute of Agriculture, *International Agricultural Statistics*, Rome, 1926.^b From: FAO *Yearbook of Food and Agricultural Statistics*, 1956, vol. X, Part I.^c J. R. Andrews, *Burmese Economic Life* (Stanford (California) and London (England), 1947), p. 43.^d *Statistical Abstract of Ceylon*, 1957.^e 1931-1937.^f Irrigated area only.^g Federated States only, 1918.^h 1922-1924.ⁱ 1910-1913.^j 1911-1913.^k Cambodia, Laos and Viet-Nam.^l The Republic of Viet-Nam.

Areas under rice have increased considerably in most countries, though in Burma they have declined since the Second World War; in some areas, part of the increase has been the result of an expanding practice of double-cropping within lands already cultivated. In

many countries, the ratio of harvested area to total land area is still very small, but in some it has become considerable: about one-third of the total area in Java and Madura, and about one-quarter in China (Taiwan) are cropped in rice. In the latter instance, further exten-

sions of rice areas depend, for the most part, on the use of double-cropping, there being very little additional land suitable for rice cultivation.

Again with the exception of Burma, the production of rice has also increased, despite a set-back caused by the Second World War. In China (Taiwan) output has doubled within the past thirty years.

The increases in output have resulted mostly from an extension of harvested areas rather than from increases in average yield. In China (Taiwan) and in Malaya, there has also been a definite rise in yields. For some other countries, the statistical evidence is partly inconsistent, and in some instances average yields may have actually declined. Declines in average yields may sometimes have been a result of extensions of cultivation to lands less suitable than those earlier cultivated.

Even in countries specializing in the export of rice (e.g., Burma, Thailand), yields range mostly from 12 to 18 quintals per hectare. This is not a high yield, though lower yields of rice cultivation have been observed in some parts of the world.⁸ Among countries of the region, only China (Taiwan) has achieved a comparatively high yield, followed by Malaya and Indonesia.

In the context of this discussion, the progressive rise of yield in Japanese rice cultivation is most noteworthy though, of course, one cannot conclude that similar achievements are possible in the different natural and social environments of South-East Asia. According to the FAO *Yearbook*,⁹ where the attempt is made to present internationally comparable statistics, Japan's yield of (paddy) rice per hectare of harvested area was 36.3 quintals in 1934-38, 40.0 in 1948-52, and 42.8 in

1954-55. This recent achievement follows upon a long history of increasing efficiency in Japanese rice production. Another set of statistics, not strictly comparable with those presented so far, shows the following rise of yield of "brown rice equivalent" per hectare in Japan:¹⁰

Period	Quintals per hectare
1878-1880	17.3
1881-1890	19.4
1891-1900	21.0
1901-1910	23.8
1911-1920	26.9
1921-1930	27.6
1931-1935	27.9
1936-1940	30.9
1941-1945	27.6
1946-1950	31.9
1951-1955	31.5
1956	33.4

In Japan, however, the harvested area has changed very little: except for 1944 and 1945, the area under rice has fluctuated between 3 and 3.3 million hectares throughout the past 45 years. The rise of yields in China (Taiwan), less spectacular than that of Japan, is remarkable since it has occurred simultaneously with a rise in the proportion of areas harvested twice a year. Here the expansion of the cultivated area, rapid at first, has become very slow since the 1930s. But whereas previously the ratio of harvested to cultivated land area was of the order of 1.3 to 1, it has recently attained the remarkable figure of 1.72 to 1.¹¹

⁸ The following 1954-1955 averages are taken from the FAO *Yearbook of Food and Agricultural Statistics, 1956*, vol. X, Part 1; Sierra Leone 7.6 Turkey 37.5 French West Africa 7.8 Japan 42.8 Costa Rica 10.0 Egypt 47.8 Guatemala 12.2 Italy 49.9 India 12.4 Spain 57.4

⁹ See the preceding footnote.

¹⁰ Figures for 1878-1930 from *Crop Statistics for Japan, 1878-1946*, General Headquarters Supreme Commander for the Allied Powers, Natural Resources Section, Report No. 108, Tokyo, 1948. Figures for 1931-1956 from *Japan Statistical Yearbook 1957*, Japan, Bureau of Statistics, Office of the Prime Minister, Tokyo, 1957.

¹¹ W. Rhynsbarger, *Area and Resources Survey, Taiwan* (Tapei, Taiwan, International Co-operation Administration, Mutual Security Mission to China, December 1956), p. 67.

Table 40
QUINTALS OF RICE PRODUCTION PER INHABITANT IN SOUTH-EAST ASIAN COUNTRIES, 1909-1955

Country	1909-1913	1922-1925	1934-1938	1948-1952	1954-1955
Burma	—	—	4.5	2.9	2.9
Cambodia	3.4 ^a	2.9 ^a	2.6	3.5	2.2
Ceylon	0.5	0.5	0.5	0.6	0.8
China (Taiwan)	2.6	2.6	3.2 ^a	2.1	2.3
Indonesia					
Java and Madura	1.3	1.3	1.3	1.2	1.5
Other islands	—	—	—	1.4	1.6
Laos	3.4 ^a	2.9 ^a	3.0	5.4	3.2
Malaya	—	0.9 ^b	1.3	1.2	1.1
Philippines	0.9 ^c	1.7	1.4	1.4	1.3
Thailand	3.4 ^d	4.6	3.1	3.7	3.1
Viet-Nam	3.4 ^e	2.9 ^e	2.9	—	2.0 ^f

^a 1931-1937.
^b 1933-1934.
^c 1910-1913.

^d 1911-1913.
^e Cambodia, Laos and Viet-Nam.
^f The Republic of Viet-Nam.

By relating total outputs in rice to numbers of the population, *per capita* figures are obtained as shown in Table 40. People in South-East Asia do not, of course, subsist exclusively on rice, though rice is still their principal diet. A precise figure of *per capita* rice requirements, therefore, cannot be indicated. Nevertheless, it is evident that the several countries are unequally supplied with rice locally produced. An average of two quintals per inhabitant has not been attained in Ceylon, Indonesia, Malaya and the Philippines but has almost invariably been exceeded in Burma, Cambodia, China (Taiwan), Laos, Thailand and Viet-Nam. In the latter countries, however, and especially in Burma and China (Taiwan), there has been a tendency for *per capita* rice production to decrease; increases in the local population, post-war disturbances, and reductions in the volume of foreign trade have combined in curtailing the previously large exportable surpluses of several areas.

The needs of the rice importing countries, on the other hand, notably Ceylon, Indonesia and Malaya, also tend to rise with population increases. But there has recently been some substitution of other foods, such as maize in the Philippines, millet and sorghum in Burma, soya beans in Java, and cassava, sweet potatoes and citrus fruits in several areas. With an expected further acceleration of population growth, further changes in the volume of trade in rice, and in the production of alternative sources of food, are to be expected.

7. URBAN DEVELOPMENT

With the exception of Singapore, the populations studied here are still predominantly rural, but the relative importance of their urban segments has been increasing. The statistical criteria by which urban populations are defined vary greatly, depriving international comparisons of much of their meaning. The figures presented in Table 41, nevertheless, are somewhat indicative of recent trends.

Though one may view the growth of urban populations as a concomitant of the transition from traditional agrarian to modern industrial forms of living, the development of cities in South-East Asia is greatly at variance with the pattern of city growth observed during earlier phases of industrialization in western countries, the Soviet Union or Japan.

Thus, "many of the countries in Asia are characterized by one great metropolis, 'the primate city', a great city which dominates the urban situation. The 'great city' tends to be from 5 to 10 times as large as the next largest city, and there is no system of cities in keeping with the pattern described in the more economically advanced countries."¹² "In many cases, the cities in less developed areas were established in a colonial period as centres of administrative control and of export of raw materials; after independence, they have often continued to perform essentially the same func-

¹² Philip M. Hauser, "World and Asian Urbanization in Relation to Economic Development and Social Change", in *Urbanization in Asia and the Far East*—Proceedings of the Joint UN/UNESCO Seminar, Bangkok, 8-18 August 1956 (Calcutta, 1957), p. 87.

Table 41

PERCENTAGES OF POPULATION OF SOUTH-EAST ASIAN COUNTRIES CLASSIFIED AS URBAN RESIDING IN THE LARGEST CITY AND RESIDING IN CITIES WITH 100 000 OR MORE INHABITANTS, AS ENUMERATED OR ESTIMATED FOR RECENT DATES

Country	Date ^a	Per cent of population living in:		
		Urban places	The largest city	Cities of 100 000 or more
Burma	1931 C	10.4	2.7	3.6
	1941 C	—	3.0	4.0
	1953 C ^b	15.4	3.7	5.2
Cambodia	1948 E	—	3.0	3.0
	1956 E	—	11.2	—
Ceylon	1931 C	13.9	5.4	5.4
	1946 C	15.4	5.4	5.4
	1953 C	15.3	5.2	5.2
	1956 E	17.6	—	—
China (Taiwan)	1946 E	—	3.8	18.8
	1950 E	—	6.7	18.1
	1956 E	—	8.1	24.2
Indonesia	1930 C	—	0.7	2.6
	1952 E	—	2.1	7.3
	1956 E	—	2.3	8.0
Laos	1948 E	—	0.8	0.0
	1956 E	—	6.9	6.9
Malaya	1931 C	22.1	3.9	6.9
	1947 C	26.5	3.8	7.4
	1957 C	—	5.0	10.8
Philippines	1939 C	23.3	—	—
	1948 C	24.1	5.2	9.7
	1956 E	35.3	—	—
Thailand	1947 C	9.9	3.6	13.3
Viet-Nam	1948 E	—	2.7	6.0
	1956 E	—	6.5	8.4

^a "C" refers to data from census enumerations, "E" to estimates.

^b Census of urban populations only; total population of the country as estimated.

tions, with the administrative control assumed by the national government."¹³

It is of more than historic interest that the great metropolitan centres of Burma, Thailand and Viet-Nam are at Rangoon, Bangkok and Saigon, i.e., at or near the points of trans-shipment where the river delta opens out to the sea; in earlier times, when international trade had a less dominant role, the capitals of these countries were more centrally situated, at Mandalay, Ayuthia and Hué, the ancient seats of the kings of Burma, Siam and Annam. Those former national centres have been pushed into the background with the growth of the super-cities at points of ready access by maritime trade. "These concentrations of people and resources in primate cities may serve to inhibit the growth of medium-sized cities

¹³ *Report on the World Social Situation* (United Nations publication, Sales No.: 1957.IV.3), p. 124.

Table 42

PERCENTAGE COMPOSITION OF MALE LABOUR FORCE BY BRANCHES OF ACTIVITY IN SELECTED CITIES OF SOUTH-EAST ASIA, BOMBAY, TOKYO AND SYDNEY (RECENT CENSUS AND SURVEY RESULTS)

City	Date	Percentage of male labour force engaged in							
		Agriculture ^a	Industry ^b	Commerce ^c	Transport ^d	Services			Other ^e
						Total all services	Administrative services	Personal services	
Bangkok	1956 ^f	2	29	20	8	29	(16)	...	12
Colombo	1953	2	18	17	7	54	(19)	(30)	2
Manila	1956 ^f	3	31	20	15	30	(20)	(10)	1
Rangoon	1953 ^g	1	16	22	9	40	(20)	(16)	12
Singapore	1947 ^h	8	20	25	16	28	...	...	3
Taipei	1930 ⁱ	6	26	30	10	28	(18)	...	0
Bombay	1951 ^j	1	40	22	10	27	(7)	(17)	0
Tokyo	1955	3	43	25	8	21	(6)	(15) ^k	0
Sydney	1954 ^l	1	48	19	15	16	...	...	1

^a Including forestry and fishing.

^b Including mining, quarrying and building.

^c Including banking and insurance.

^d Including communications and public utilities.

^e Not classifiable elsewhere.

^f Household survey; classifications not necessarily comparable with those of census.

^g 1953 Census Stage, Advance Release No. 13. Data are provisional and subject to revision.

^h Entire island.

ⁱ Census data summarized by G. W. Barclay in *Colonial Development and Population in Taiwan* (Princeton, N. J., 1954), p. 128.

^j Greater Bombay.

^k Including liberal professions.

^l Sydney metropolitan area.

more strategically placed for the development of various industries."¹⁴

Though large and rapidly growing, the "primate cities" of South-East Asia are not predominantly industrial. Branches of economic activity are not comparably defined in various censuses, yet the comparisons made in Table 43 are significant, at least in broad outline.

While industry engages the largest proportions of male workers in Bombay (India), Tokyo (Japan) and Sydney (Australia), services predominate in Colombo, Rangoon, Singapore and Taipei (though data for that city are pre-war), and also loom very large in Bangkok and Manila. It is to be pointed out that even much larger proportions of the female labour force are likewise engaged in services. The figures do not reveal the methods and organization of the work performed in the industrial, service, and other sectors; many "industrial" workers in some Asian cities are actually craftsmen, rather than factory workers.

The sharpest contrast is that between Colombo, on the one hand, and Sydney on the other: in Colombo, the ratio of industrial workers to service workers is one to three, while in Sydney it is three to one.

8. FOREIGN TRADE

In the countries of South-East Asia, foreign trade occupies a large share in the total volume of national economic transactions. In many of them economic output is not sufficiently varied to support a high degree of self-sufficiency. While an international division of labour tends to promote prosperity, the benefits accruing

¹⁴ Report on the world Social Situation (United Nations publication, Sales No.: 1957.IV.3), p. 124.

to individual countries depend on the terms on which exported articles are exchanged for imports. In Table 43, statistics on foreign trade are brought into relation with estimates of national income. Both sets of data are subject to qualifications. The monetary valuation of articles entering foreign trade is likely to be higher than that of articles produced for local consumption, since transport charges would not permit the long-distance movement of goods whose market value, per unit of weight, is small. The balance of trade also includes

Table 43

VALUE OF IMPORTS AND EXPORTS AS PERCENTAGE OF NATIONAL INCOME IN SELECTED COUNTRIES OF SOUTH-EAST ASIA, INDIA AND JAPAN, 1938 AND 1950-1953^a

Country	Imports		Exports	
	1938	1950-1953	1938	1950-1953
Burma	18	20	41	28
Ceylon ^b	40	35	38	39
Indonesia	17 ^c	9 ^d	25 ^e	10 ^d
Malaya and Singapore ^f	—	66	—	76
Philippines	—	13	—	12
Thailand	15	17	23	18
India	—	7	—	6
Japan	—	14	—	9

^a Sources: United Nations *Statistical Yearbook, 1957*, and Japan Bureau of Statistics, *Statistical Yearbook, 1954*.

^b Between one-tenth and one-twentieth of exports in individual years consist of re-exports.

^c 1929: 22 per cent; 1937: 17 per cent.

^d 1951-1952 average.

^e 1929: 29 per cent; 1937: 36 per cent.

^f Data include a large volume of trans-shipments, notably at the port of Singapore.

the trans-shipment at national ports of goods which are neither bought nor sold in the national market. The statistics, therefore, must be regarded with various reservations. It is nevertheless apparent that foreign trade plays a much larger role in the economies of South-East Asian countries than in the national economies of India or Japan. On the other hand, the relative importance of South-East Asian trade appears to have declined recently, notably in Indonesia and in Burma.

9. EDUCATION

Only a few measurable facts of the economy and physical environment have been reviewed so far. The more imponderable factors of attitudes, social structure and cultural values are no less determining for the ability of populations to adjust their activities and modes of living to changing conditions. It is impossible to summarize this latter set of conditions in any simple measurement. The criterion of literacy, nevertheless, is relevant since ability to read and write is the key to an acquisition of ideas and knowledge most easily transmitted by the written word. It contributes also directly to economic efficiency, since it facilitates communications and the recording of facts and obligations. The attempt has recently been made to estimate on a comparable basis the extent to which illiteracy still prevailed in the world in or around the year 1950.¹⁵ Estimates obtained for South-East Asian countries are brought together in Table 44.

Table 44

ESTIMATED PERCENTAGES OF POPULATION AGED 15 YEARS AND OVER ILLITERATE IN SOUTH-EAST ASIAN COUNTRIES AROUND 1950

Country	Per cent
British Borneo	
Brunei	70-75
North Borneo	80-85
Sarawak	80-85
Burma	40-45
Cambodia	80-85
Ceylon	35-40
Indonesia	80-85
Laos	80-85
Malaya	60-65
Philippines	35-40
Singapore	50-55
Thailand	45-50
Viet-Nam	80-85

There are considerable variations, more than half the population past primary-school age being literate in Burma, Ceylon, the Philippines and Thailand, while in some other countries only one-fifth or less of the adult population can read and write. Combining these estimates, one can assess literacy in 1950 for the region as a whole at near 35 per cent, almost two-thirds of the adult population still being illiterate.

¹⁵ UNESCO, *World Illiteracy at Mid-century*, Monographs on Fundamental Education, No. XI. Paris, 1957.

Notable progress, nevertheless, has been made in several countries. Thus, of Burma's population aged 15 years and over, 70.1 per cent were found illiterate in 1901 and 57.6 per cent in 1931 (30.1 per cent in the urban census of 1953). In Ceylon, 73.6 per cent of individuals aged 15 years and over were illiterate in 1901 as against 42.2 per cent in 1946. In the Philippines, illiteracy of the population aged 10 years and over declined from 50.8 per cent in 1918 to 38.7 per cent in 1948. If progress at such rates continues, about one-half of the entire adult South-East Asian population will be literate by 1980. More rapid progress is, of course, to be desired.

SUMMARY

The indications furnished in the preceding pages do not nearly suffice for an adequate study of the demographic aspects of development problems in South-East Asian countries. Conditions vary greatly from one country to another, and it would be rash to make any generalized statement concerning the impact of population on economic conditions in the region.

There are great variations in average population densities, degrees of urbanization and the relative importance of the cash economy. Dependence on agriculture is high, but not uniformly so. Very unequal portions of national territories are used in agriculture, and varying proportions for the production of rice, the staple food. Rice output has roughly kept pace with population growth, in some instances through a rise in yields, most of them still low, in others through double-cropping or the cultivation of additional lands; but there is a tendency in rice exporting countries for the margin of exportable surplus to diminish. Foreign trade plays a major role in the national economies but its relative importance has declined recently, though here also conditions vary greatly from country to country. In some countries, a majority of the adult population are now literate, in others only a small minority. To these contrasts and differences, probably many others can be added, such as diversities in the distribution of incomes, land ownership and tenancy systems, the growth of cities, and the forms of village and family organization. In short, a study on a large scope is required before the varying situations in the several countries can be suitably compared and assessed.

But certain factors are common to all these countries: mortality is declining, fertility is high and the expectation is one of rapid and accelerating population growth. Levels of living are low, and it is assumed that concerted efforts are needed for systematic economic and social development. Several countries in the region have drawn up integrated development plans for purposes of practical implementation. In such plans and efforts, it is incumbent to take a great variety of factors into account, of which population growth is but one.

Many experts working singly or in teams are bent on solving particular problems which form part of a much wider and more general problem. There are problems of public finance, public administration, agricultural and industrial techniques, social reform, international and national trade, community development,

education, transportation, health, housing, and migration, to mention but a few. Each of them can, under certain conditions, attain over-riding importance. It is the understandable tendency of each expert to attach greatest significance to that problem with which he is concerned most directly. From this tendency, the analysts of population trends are not exempt.

But it is being increasingly recognized that efforts will not only have to be expended in a great many directions, but that they will also have to be co-ordinated for proper balance and integration of the results achieved. And it is also known that no problem can be solved unless the solution is a true expression of the attitudes, aspirations and valuations of the people affected. Thus, the technical regulation of the flow of the Mekong River, a reform of the penal code, the propagation of methods of birth control, an urban planning project, etc., are at best partial measures, which cannot have the desired effects unless they are well integrated with the changing over-all structure of the society and its economy.

B. Geographic distribution of the population

In the context of demographic analysis, it is thought that further light is thrown on South-East Asian problems by an examination of existing inequalities in the geographic distribution of the several national populations.

One outstanding feature of the South-East Asian region is the great unevenness with which population is distributed within the several national territories. Large areas of land are very little settled while relatively small portions of the countries are inhabited at a very high density.

The density of population, however, is an elusive concept. In the first place, not all land is equally suitable for human settlement, hence a given density of population may be excessive in some areas and yet too low for efficient resource-utilization and social integration in others. In the second place, density measures assume a different meaning when small rather than large areas are studied: depending on degrees of economic and social organization, each society develops its peculiar ecology in a hierarchy of inhabited places, ranging from cities, towns and agglomerated villages to small settlements, hamlets, scattered farms and nomadic groups.

Variations of density in small areas, then, reflect the structure of ecologic organization rather than variations in the intensity of exploitation of natural resources.

Many attempts have been made to overcome these shortcomings of measures of population density, but the fact remains that the ratio of population to land area is simplest to compute and appeals most readily to the imagination; simple population density, therefore, is a useful analytical tool, provided its limitations are borne in mind.

Some countries of South-East Asia are large enough to permit separate study of the numerous regions which they contain. In many instances, regions with contrasting features can be singled out on the basis of existing major administrative divisions (provinces, etc., as the case may

be), but in some countries the provincial boundaries are drawn in such a way as to overlap with natural regions, requiring further study of minor sub-divisions.

Sharp contrasts in regional population distribution are shown in Figure IV, based on average population densities which were calculated, on the whole, for each country's major divisions. There are heavy concentrations of population in the Red River delta of Northern Viet-Nam, the Menam delta of Lower Thailand, and a large portion of the island of Java. These are among the most densely settled agrarian regions in the world. Considerable concentrations appear also in the Irrawaddy delta of Lower Burma, the lower Mekong River (south Viet-Nam), and in central Luzon and the Visaya islands of the Philippines. In contrast, population densities are very low in large parts of Burma, Thailand, Laos, Cambodia, many parts of Indonesia except Java and in some of the islands of the Philippines.

Contrasts within some smaller countries are exhibited in Figure V, showing variations of population density within Ceylon, China (Taiwan) and Malaya. Much of the population of Ceylon is found in the south-west; a majority of Malaya's inhabitants are clustered in a narrow band along the south-western coast; the overwhelming proportion of the population of China (Taiwan) lives in the coastal plains, which are wide in the west but narrow in the east.¹⁶

Break-down into still smaller units brings out even sharper contrasts, but as the units become small, the analysis reflects the organization of the human habitat rather than the intensity of resource utilization.

One way of summarizing regional disparities of population density within each country is to distinguish administrative divisions whose average densities of settlement are respectively under 10, 10 to 100, and over 100 persons per square kilometre. Results brought together in Table 45 depend somewhat on the average size of the divisions selected.¹⁷

On the basis of the divisions which have been selected, it can be said that nearly all of Laos and British Borneo

¹⁶ Low population densities in the mountainous interior of the island correspond to those portions of each prefecture which are administratively defined as "aborigine territory".

¹⁷ The divisions selected are the major administrative divisions (provinces, etc.), except in the following instances:

In *Burma*, the boundaries of the large provinces bear little relation to the greatly varying features of the terrain; minor divisions, therefore, had to be taken into account.

In *China (Taiwan)*, each of the island's prefectures comprises part of the "aborigine territory"; a distinction was made between those portions, and the remainder, of each prefecture.

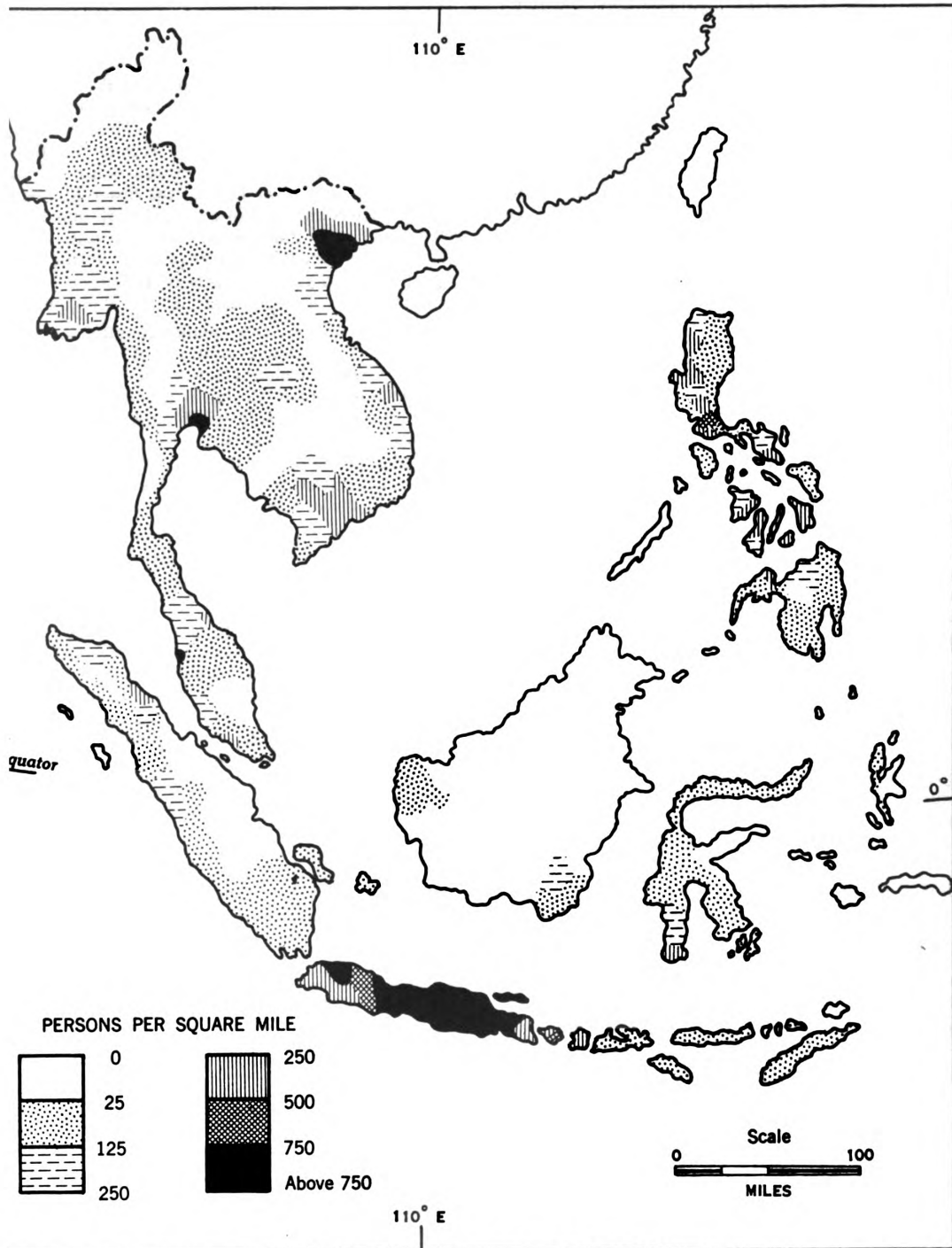
Portuguese Timor and *Singapore*, of small territorial extent, have each been treated as one unit only. *British Borneo* has been divided into the three separate territories of Brunei, North Borneo and Sarawak, without further sub-division.

In *Indonesia*, contrasts in population densities of the major islands are so sharp as to be fully revealed by a broad division of the national territory into eight units only.

The average size of the divisions selected for Table 45 is greater than 12,000 square kilometres only in the cases of British Borneo, Indonesia and Laos. In British Borneo and Laos areas of high population density are so small as to be of little importance in relation to those of other countries; in Indonesia, they are so large and well-defined as to be clearly revealed for the large divisions which have been selected.



Figure IV
SOUTH-EAST ASIA. DENSITY OF POPULATION



adapted from E.H.G. Dobby, *Southeast Asia*. London. University of London Press, 5th Edition 1966, p. 388.

Figure V
CEYLON, CHINA (TAIWAN), MALAYA AND SINGAPORE. DENSITY OF POPULATION

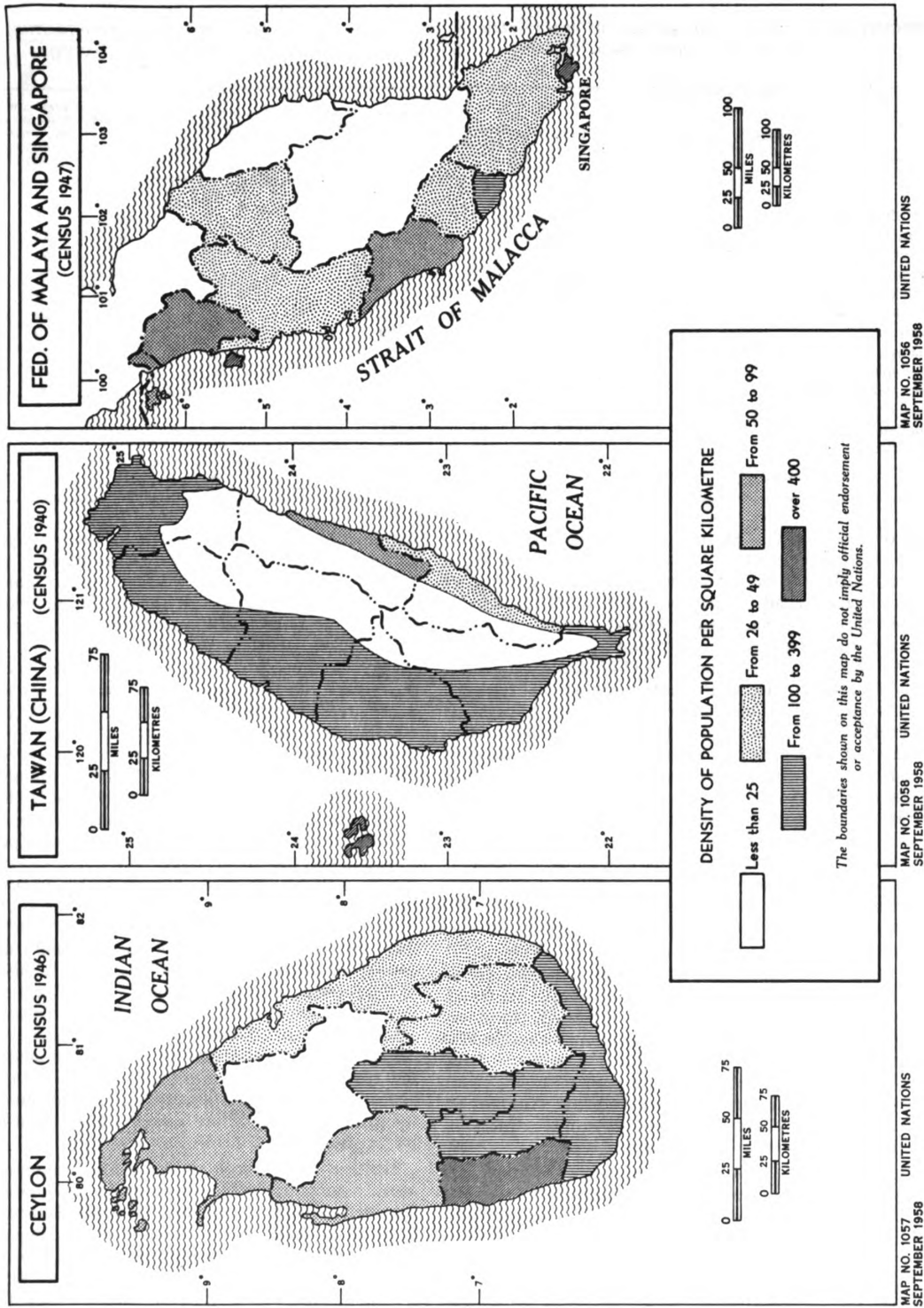


Table 45

PERCENTAGE OF TOTAL LAND AREA, AND PERCENTAGE OF TOTAL POPULATION, COMPRISED IN ADMINISTRATIVE DIVISIONS OF VARYING POPULATION DENSITIES IN SOUTH-EAST ASIAN COUNTRIES (RECENT DATES)

Country	Year	Number of divisions	Percentage of land in divisions inhabited at average densities (per sq. kilometre)			Percentage of population in divisions inhabited at average densities (per sq. kilometre)		
			Under 10	10-100	Over 100	Under 10	10-100	Over 100
British Borneo	1947-1951	3	97	3	0	94	6	0
Burma	1941	41	33	66	1	6	89	5
Cambodia	1950	15	42	54	4	8	61	31
Ceylon	1946	9	0	69	31	0	29	71
China (Taiwan)	1940	15	31	21	48	1	5	94
Indonesia	1952	8	42	50	8	5	29	66
Laos	1947	11	100	0	0	100	0	0
Malaya	1947	11	27	71	2	5	81	14
Philippines	1948	51	8	71	21	1	41	58
Portuguese Timor	1950	1	0	100	0	0	100	0
Singapore	1947	1	0	0	100	0	0	100
Thailand	1947	71	12	85	3	2	82	16
Viet-Nam	1943	63	20	63	17	2	37	61
TOTAL (weighted average)	—	300	37	55	8	4	44	52

and over one-third of Burma, Cambodia, and Indonesia are very sparsely settled, while areas of very high population density comprise one-third of Ceylon, one-half of China (Taiwan), all of Singapore and small portions of some other countries. Areas of high density, however, contain the majority of the populations of Ceylon, China (Taiwan), Indonesia, the Philippines, Singapore and Viet-Nam, and appreciable proportions in some other countries. Thus, two-thirds of the population of Ceylon lives in one-third of the land; almost the entire population of China (Taiwan) in less than one-half of the land; two-thirds of the population of Indonesia in one-twelfth of the land; more than one-half the population of the Philippines within one-fifth of the land; and nearly three-fifths of the population of Viet-Nam in one sixth of the land.¹⁸ For the region as a whole, it can be said that one-half of the population live in one-twelfth of the land, whereas one-third of the land comprises only a very small fraction of the population.

As will be noted from the comparison of Figure VI with Figure IV, South-East Asian areas of dense population coincide very nearly with the areas in which intensive forms of rice cultivation are practised. Methods of cultivation vary greatly from one area to another and hundreds of different species of rice are being planted. Where cultivation is intensive, it is both a cause and an effect of dense settlement. This two-fold relationship between methods of cultivation and density of population has been conditioned by two sets of factors.

First of all, there are the factors of the physical environment. Intensive cultivation has been favoured especially in areas of heavy rainfall and rich soil. In much of South-East Asia, tropical rain forest is the natural form

of vegetation but, however luxurious the growth of forest, the land, when cleared, loses rapidly its natural fertility, which leads to "leached" soils. Forest clearings are sometimes planted for a year or two, at long intervals only by semi-nomadic cultivators; since large areas are required for this extensive form of land use, the populations practising such methods have for the most part remained sparse and widely scattered. In some areas, however, the natural soil fertility is being continuously restored either through volcanic ashes, or through periodic inundations by rivers carrying rich silt. The first type of land, favoured by abundant rainfall, has given rise to very intensive cultivation, often in terraces on mountain slopes up to high altitudes, notably on the island of Java. The other type of land is found in the great river deltas, notably those of the Irrawaddy (Burma), Menam (Thailand), Mekong (Cambodia and southern Viet-Nam), and the Red River (the Tonkin region of northern Viet-Nam); in these regions, however, the intensity of land use and the density of population depend also on the historic age of the present form of settlement. In several countries, there is an abrupt discontinuity between intensive and extensive forms of settlement, but in some countries intermediate land-use densities are also found; such is the case in Upper Burma, a zone of comparatively low rainfall which had been settled at a moderate density for many centuries before intensive cultivation of Lower Burma began.

Historic events, such as the gradual conquest of the Mon, Khmer and Kham civilizations in Lower Burma, Thailand and Viet-Nam by the forward thrust of the Burmese, Thais and Viet-Nameese, all coming from the north, account for the varying antiquity of intensive cultivation in different areas. In each area, however, a highly integrated village society has since then been constituted which has become very resistant to change.

¹⁸ No exact meaning can be attached to these comparisons. The divisions selected for each of the several countries do not conform to any common criteria.

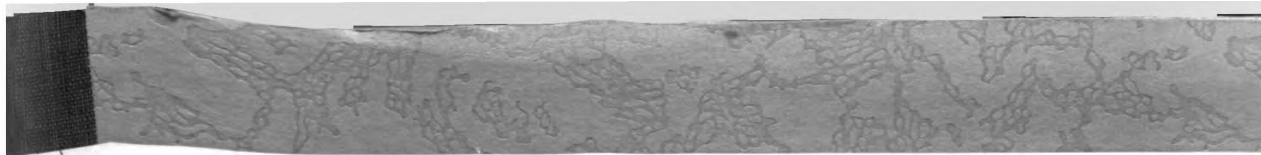
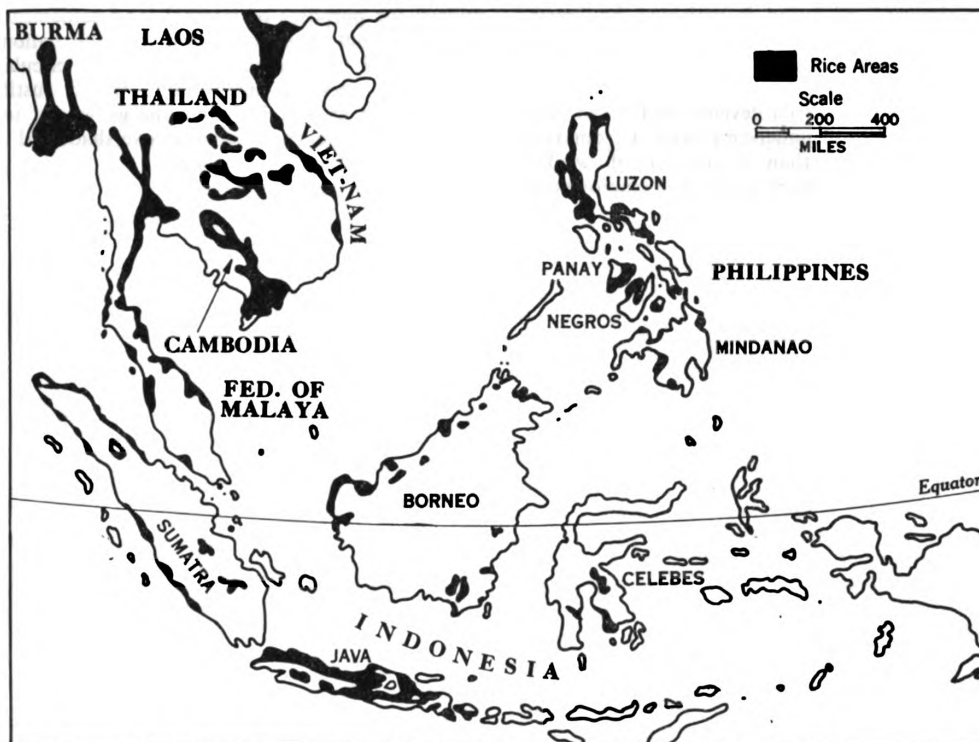


Figure VI
SOUTH-EAST ASIA. DISTRIBUTION OF RICE CULTIVATION



Adapted from E.H.C. Dobby, *Southeast Asia*. London, University of London Press, 5th Edition 1956, p. 352.

The rigidity of the social environment, according to certain views, has been further solidified under colonial systems which were in effect during most of the nineteenth and the first half of the twentieth century. Thus, to a certain extent, man has become the prisoner of his own works. As population continues to increase in areas already densely settled, and large resources remain unused in areas of sparse settlement, a new flexibility is needed to ensure an adequate level of living for all. Local concentrations of rural population, which have originated from the relative natural advantages of certain areas, tend to become excessive as past trends continue. New initiatives are then needed for a more rational re-distribution of the population in relation to available resources. Some initiatives, private and public, have come into play during recent decades, giving rise to internal migratory movements, to which consideration is given in the ensuing sections. Movements for land settlement, however, have been less conspicuous than the recently accelerated tendency towards urbanization.

There has been a rapid growth of cities concerned with international trade, particularly in the most recent phases of colonial development. Since independence has been gained by most countries, the growth of the same cities, now administrative centres of new governments, has been speeded up further. It is often one city only that has gained dominance and whose growth

outpaces by far that of other cities in the same country. Recently, eleven cities of the region under study have passed the half-million mark, namely: Rangoon (Burma), Colombo (Ceylon), Taipei (China (Taiwan)), Djakarta, Djokjakarta, Surabaya and Bandung (Indonesia), Manila (Philippines), Singapore (Singapore), Bangkok (Thailand), and Saigon-Cholon (Viet-Nam). The combined population of these cities in 1955 can be estimated at 1,425,000,¹⁹ which is about 7 per cent of the combined regional population.

The same eleven cities had a total population of about 3 million in 1920, 4 million in 1930, and over 5 million in 1940; by 1950, the combined population exceeded 11 million. In 1930, only Bangkok and Djakarta exceeded the half-million mark. The eleven cities combined then comprised only 3 per cent of the combined regional population of South-East Asia, Ceylon and China (Taiwan). As compared with earlier periods, the recent acceleration in the growth of these cities has been phenomenal though, outside these cities, urbanization is still not very rapid. Since many so-called service employments are really only disguised

¹⁹ Except for Taipei and Saigon-Cholon, the figures for these cities have been obtained by interpolation of data presented by Rhoads Murphey, "New Capitals of Asia", *Economic Development and Cultural Change*, vol. V., No. 3, April 1957, pp. 226-227. Figures comprise, where possible, entire conurbations, including satellite towns.

under-employment, if not unemployment, and since service employments in these large cities greatly exceed the employments in manufacture, it can only be conjectured that cityward migration is activated by "push" rather than by "pull": villages are being left by rural migrants who no longer find a suitable accommodation within the rural economy, in greater numbers than are warranted by urban industrial development. The result is a partial transfer of under-employment from rural to urban areas, rather than a transfer of workers from less remunerative to more productive employments.

To the extent that this diagnosis is correct, the question is pertinent whether such spontaneous migratory movements, properly channelled and assisted, could not be utilized for purposes of internal land settlement. New resources would then be drawn into the national economies, and the consequently increased circulation of goods and services, incidentally, would justify part of the urban growth, including the growth of towns of intermediate size, now greatly overshadowed by the expansion of the "primate cities".

Section VI

DEMOGRAPHIC EFFECTS OF MIGRATION FOR LAND SETTLEMENT

Movements of peasants to new farming areas have occurred in most countries of South-East Asia, with important results. Thus, Burma became an exporter of rice when, at the turn of this century, large numbers of peasants from Upper Burma settled in the irrigated deltas of Lower Burma. During several decades, a similar movement from north to south took place in Viet-Nam: subsistence farmers of the crowded Tonkin delta moved to Cochinchina, where they entered the cash crop economy. In Ceylon, Indonesia and the Philippines, the Governments have rendered systematic assistance to the transfer of rural families from densely settled areas to lands of greater opportunity: in Ceylon, the movement of colonists has been from the irrigated south-west to the island's dry zone; in Indonesia, both before and since the Second World War, migrants have been leaving the island of Java for settlement in Sumatra and, in smaller numbers, Borneo; a great part of the movements in the Philippines has been from the island of Luzon and the Visayas to the island of Mindanao. In Malaya, 500,000 rural families have recently been re settled in compact villages, partly for security reasons. Recent warfare has caused an influx of 800,000 refugees into the Republic of Viet-Nam, and the Government is actively engaged in their re-integration in the rural economy, while also undertaking a scheme for land settlement in the country's hilly regions. Plans for the regulation of the Mekong river may some day set in motion a movement of settlers to the river valley in Cambodia, Laos and Thailand.

These movements have been, and will be, attended by greatly varying conditions. In some instances, migration results mostly from the private initiative of the migrants themselves; in other instances, government planning and assistance play a major role; in all instances, the transfer of peasants has profound effects on the structure of the national economy.

The study of land settlement has wide ramifications, involving considerations of anthropology, economics, geology, public administration, sociology and technology—to mention but a few disciplines—if the full implications in terms of human welfare are to be understood. In this context, demography can make several contributions, including the analysis of national and regional population trends, and the study of the growth and stabilization of new settlements. Very few data have so far become available for investigations of this type, but it is probable that much future research will be devoted to the topic.

The limited purpose of this section is to present the results of theoretical computations concerning possible

effects of migratory movements of the stated type. For lack of sufficient statistics on the subject, calculations had to be derived from a conceptual model. Actual movements will never conform to a model, nor will they ever be alike in any two cases. But, for a rough assessment of the long-range effects of agrarian settlement migration, the conceptual model developed here may suffice.

1. Method of study

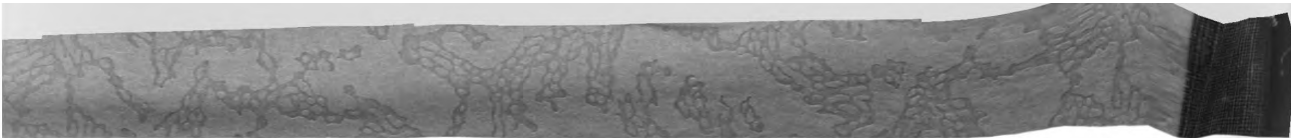
A movement for land settlement will invariably involve young male and female workers. The extent to which young men are accompanied by young women, children, and older persons, will depend on various circumstances such as the nature of intra-family and inter-family relations, difficulties encountered in the terrain of settlement, its distance from the area of out-movement, the urgency with which the movement is being enjoined, etc. Some of these considerations are more of an economic character, others more social. While the movement progresses, the relative importance of the several factors is likely to change.

It has, therefore, appeared useful to develop a basic model in which the process of migration passes through a variety of phases, with varied assortments of conditions determining the composition of the migratory stream. At the outset, economic needs are the dominant factor, but with time, social considerations assume increasing importance.

Such successive phases can be envisaged in the fictitious case where a closed community is being transferred from one area to another, in its entirety, in a gradual and systematic fashion. Conceivably, this may sometimes happen with a village, but such an isolated event is not the object of the present study. Instead, this fictitious model will be used to deduce a sequence of varied patterns of migratory movements such as, quite possibly, may actually occur. Whether the details of the model are realistic or not is of minor consequence: in the long run, the cumulated effects of movements of varying types tend to become quite similar.

To facilitate the calculation of results which can be readily combined, it was found expedient to assume a migrant population with constant mortality and fertility.¹ In particular, fertility has been represented by

¹ The assumption of constant mortality is convenient but conflicts with the assumptions on which the population projections for individual countries have been calculated. To obtain consistency with the population projection for a given country, the migration model may have to be modified.



a gross reproduction rate equal to 3, and mortality by an expectation of life equal to 45 years, conditions which are now rather typical of South-East Asian populations.²

2. Basic model: the complete transfer of a community

The basic model is best visualized as a closed community, segregated from the rest of the population and moved systematically from one area to another.³ This transfer will be assumed to end after 30 years with the complete abandonment of the former place of residence, all members of the community being re-assembled in the new place of settlement.⁴ It has been imagined that this transfer can be attended by the following sequence of events.

As the terrain of settlement presents physical obstacles, much pioneer work such as land clearance will initially be undertaken, mostly by young men. Assuming a customary division of labour between the sexes, even this group of pioneer migrants will be accompanied by certain numbers of young women.

After land clearance and the construction of suitable dwellings, entire households can be moved, provided none of their members are as yet too old. At this stage, crop production, marketing, and a variety of community services will be organized, requiring the co-operation of experienced members of the community, some of them of relatively mature age.

When essential services are fully established, households including old persons can also be transferred. With this sequence of events, persons of different sex and age will migrate at different times with varying frequency. The following assumptions, then, would seem reasonable.

Children aged less than 15 years can be assumed to migrate invariably in the company of their mothers. With assumed rates of fertility and mortality, the numbers of children accompanying women of different ages can be calculated.

The initial movement of pioneers has been conceived as follows: in a population of the assumed type, there is a doubling in the course of an average paternal generation. As, on an average, two sons survive to adulthood in each family, it can be assumed that up to one-half of the young men at the ages of greatest physical strength are free to move within the first few years. At such

² Such a stable population has a constant crude birth rate of 45.3, a death rate of 19.2, and a rate of natural increase of 26.1 per 1,000. It would double in the course of 26.5 years.

³ It is easiest to visualize the complete transfer of an entire village. Actually, the present model is equally valid in the case where a community initially dispersed among numerous villages is being brought together in another locality. It is also valid in the complete absence of any recognizable initial community, so long as it is the intention of the migrants to re-constitute groups of related households in the area of settlement which are of similar composition to the groups of households existing in their areas of origin.

⁴ If the community is a segregated village, the old site of the village would then be abandoned. If the community is conceived more loosely (as in the preceding footnote), this need not happen even though the new settlement will be joined by households with members of all ages.

ages, about two-thirds, if not three-quarters, of the young men are married to wives who are usually a few years younger. In this way, the rate at which young men, young women, and their few small children migrate initially can be roughly assessed.

At the other extreme, it can also be imagined that up to one-half of the persons of most advanced age will prefer to remain in the old settlement until its total abandonment becomes imminent. While the immigration of old persons is postponed, some younger members of their families are also precluded, to a varying extent, from joining the movement at an early stage. On the whole, adults of intermediate ages will be increasingly needed in the new settlement and will tend to migrate sooner or later, depending on their age.

A simple scheme in which these several rough assumptions are incorporated has been developed as follows. It was considered that the proportions of each adult age cohort⁵ remaining in the old place of settlement might diminish linearly from a certain starting position, becoming zero when, at the end of 30 years, the transfer of the community is complete. The starting positions are of two kinds. Thus, it is assumed that certain numbers of young adults are ready to migrate the instant an opportunity to do so is opened up; though, in the year 0, i.e., prior to the beginning of movements, all are still present in the old settlement (point A in Figure VII, graph for adult males), certain percentages would already have left if they could (as indicated by point B, for males aged 25-29 years). On the other hand, no adults of relatively advanced age are ready to move until some later date when the transfer of the community has made sufficient progress (at point C, in the case of males aged 40-44 years). A seemingly coherent set of such starting positions was devised, consistent with the general considerations discussed in the foregoing.

For children aged under 15 years, the percentages remaining at the old settlement were made to depend on the weighted average of percentages of women so remaining, in the age groups where they might be mothers of the children. Beyond age 15, the decline becomes linear, as in the case of other adult groups.

While Figure VII presents these changes in terms of age cohorts (i.e., individuals born in the same year), Table 46 assembles the same system of data according to age groups, i.e., according to ages attained at each given date.

It has been arbitrarily assumed that the population of the community amounts to 10,000 individuals at the moment when its transfer begins; under the assumed conditions of mortality and fertility, it will attain 21,889 at the end of 30 years, when the transfer is complete. The total population of the community, by groups of sex and age, can be readily projected with the method of stable populations.⁶ Applying the percentages of

⁵ A cohort is a group of individuals born in the same period of time, and consequently advancing jointly in age as time progresses.

⁶ A stable population is one in which given rates of mortality and fertility remain constant. The sex-age composition of such a population can be calculated by mathematical methods. Since this also remains invariable, future numbers in each sex-age group can be readily calculated by applying to each group a constant factor representing the rate of increase of the entire population.

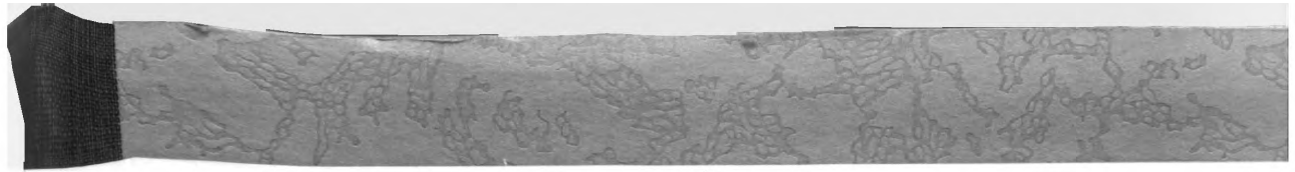


Figure VII

PERCENTAGE OF POPULATION ASSUMED TO REMAIN AT OLD SETTLEMENT, BY AGE AT TIME WHEN MIGRATION BEGINS

LEGEND :

- 1 PERSONS INITIALLY AGED* 0-4 YEARS
- 2 PERSONS INITIALLY AGED* 5-9 YEARS
- 3 PERSONS INITIALLY AGED* 10-14 YEARS
- 4 PERSONS INITIALLY AGED* 15-19 YEARS
- 5 PERSONS INITIALLY AGED* 20-24 YEARS
- 6 PERSONS INITIALLY AGED* 25-29 YEARS
- 7 PERSONS INITIALLY AGED* 30-34 YEARS
- 8 PERSONS INITIALLY AGED* 35-39 YEARS
- 9 PERSONS INITIALLY AGED* 40-44 YEARS
- 10 PERSONS INITIALLY AGED* 45-49 YEARS
- 11 PERSONS INITIALLY AGED* 50-54 YEARS
- 12 PERSONS INITIALLY AGED* 55-60 YEARS
- 13 PERSONS INITIALLY AGED* 60 YEARS AND OVER

*THE AGE CORRESPONDING TO YEAR '0', INDICATED ON THE CHARTS BY THE NUMBERS IN THE LEGEND, ADVANCES WITH TIME.

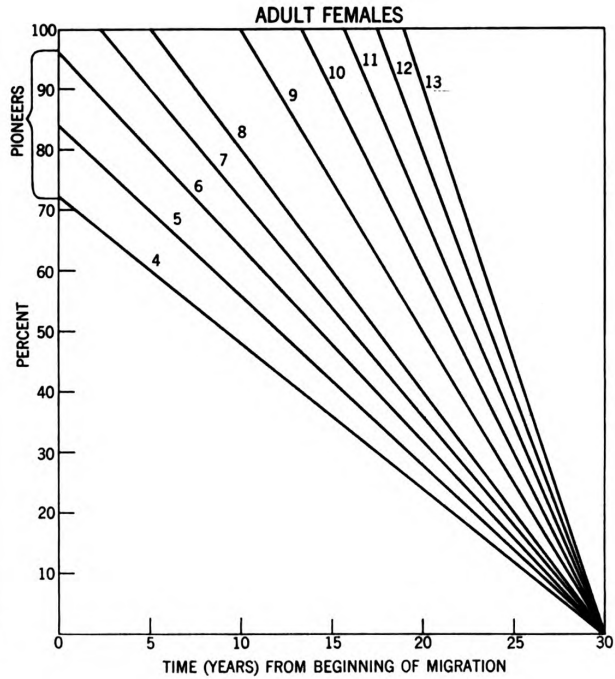
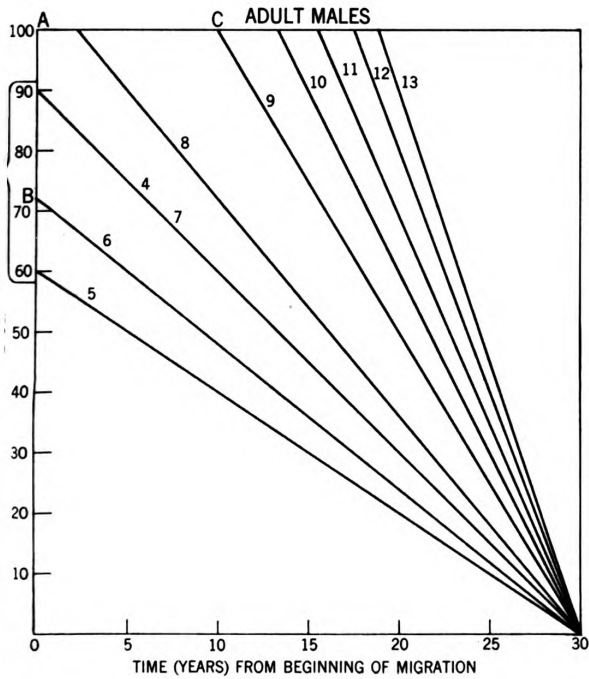
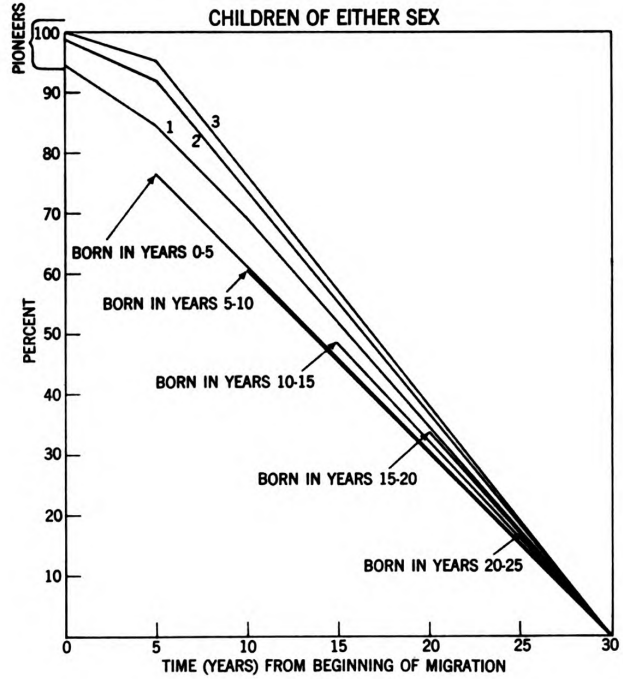


Table 46

PERCENTAGE OF POPULATION ASSUMED TO REMAIN AT OLD SETTLEMENT, BY SEX AND AGE, WHILE COMMUNITY IS BEING TRANSFERRED TO A NEW SETTLEMENT (AGE ATTAINED AT EACH GIVEN TIME)

Sex and age	(Pioneers)	Phase I	Phase II	Phase III	Phase IV	Phase V	Phase VI	
		Time from beginning of migration (years)						
	0	(0) ^a	5	10	15	20	25	30
Males								
0-4	100	(94.7)	76.4	60.6	48.5	34.0	16.8	0
5-9	100	(98.7)	84.3	61.3	45.4	32.3	16.8	0
10-14	100	(99.9)	92.0	68.9	45.9	30.2	16.0	0
15-19	100	(90)	95	73.6	51.7	30.6	15.1	0
20-24	100	(60)	75	76	55.2	34.5	15.3	0
25-29	100	(72)	50	60	57	36.8	17.3	0
30-34	100	(90)	60	40	45	38	18.4	0
35-39	100	—	75	48	30	30	19	0
40-44	100	—	90	60	36	20	15	0
45-49	100	—	100	72	45	24	10	0
50-54	100	—	100	100	54	30	12	0
55-59	100	—	100	100	75	36	15	0
60-64	100	—	100	100	90	50	18	0
65-69	100	—	100	100	100	60	25	0
70-74	100	—	100	100	100	70	30	0
75-79	100	—	100	100	100	80	35	0
80-84	100	—	100	100	100	90	40	0
85 plus	100	—	100	100	100	100	45	0
Females								
0-4	100	(94.7)	76.4	60.6	48.5	34.0	16.8	0
5-9	100	(98.7)	84.3	61.3	45.4	32.3	16.8	0
10-14	100	(99.9)	92.0	68.9	45.9	30.2	16.0	0
15-19	100	(72)	95	73.6	51.7	30.6	15.1	0
20-24	100	(84)	60	76	55.2	34.5	15.3	0
25-29	100	(96)	70	48	57	36.8	17.3	0
30-34	100	—	80	56	36	38	18.4	0
35-39	100	—	90	64	42	24	19	0
40-44	100	—	100	72	48	28	12	0
45-49	100	—	100	80	54	32	14	0
50-54	100	—	100	100	60	36	16	0
55-59	100	—	100	100	75	40	18	0
60-64	100	—	100	100	90	50	20	0
65-69	100	—	100	100	100	60	25	0
70-74	100	—	100	100	100	70	30	0
75-79	100	—	100	100	100	80	35	0
80-84	100	—	100	100	100	90	40	0
85 plus	100	—	100	100	100	100	45	0

^a Hypothetical figures obtained by linear extrapolation of figures for adults to the year zero; children in proportion to women of corresponding ages. These figures will be used as one extreme phase of migration, considered further on in the text.

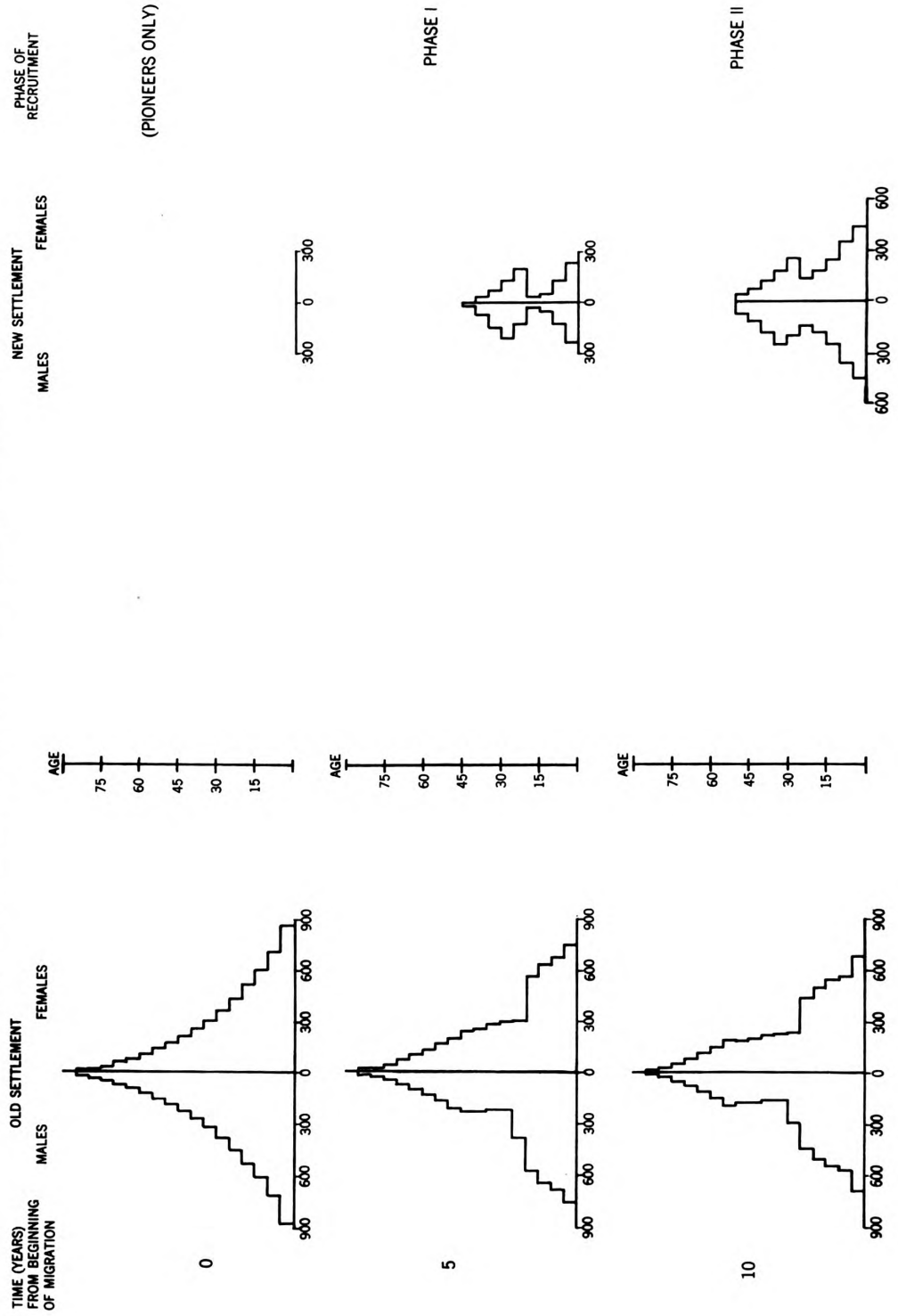
Table 47

PROJECTION OF POPULATION OF OLD SETTLEMENT AFFECTED BY TRANSFER
OF A COMMUNITY OF INITIALLY 10 000 INHABITANTS

Sex and age	Time from beginning of migration (years)						
	0	5	10	15	20	25	30
Males							
0-4	883	769	694	633	506	285	0
5-9	719	691	573	483	392	232	0
10-14	618	648	553	420	315	190	0
15-19	530	574	507	406	274	154	0
20-24	451	385	445	368	262	132	0
25-29	380	216	296	321	236	126	0
30-34	320	219	166	213	205	113	0
35-39	268	230	167	119	136	98	0
40-44	223	229	174	119	75	64	0
45-49	183	208	171	122	74	35	0
50-54	147	167	191	117	74	34	0
55-59	114	130	148	127	69	33	0
60-64	85	97	111	113	72	29	0
65-69	59	67	77	88	60	28	0
70-74	37	42	48	55	43	21	0
75-79	20	22	26	29	26	13	0
80-84	8	9	11	12	13	6	0
85 and over	3	3	4	4	5	2	0
TOTAL	5 048	4 706	4 362	3 749	2 837	1 595	0
Females							
0-4	860	749	676	617	493	278	0
5-9	702	674	558	471	382	226	0
10-14	602	631	538	409	307	185	0
15-19	516	559	493	394	266	150	0
20-24	438	299	432	358	255	129	0
25-29	369	294	230	311	229	123	0
30-34	310	282	226	165	199	110	0
35-39	260	266	216	162	105	95	0
40-44	217	247	203	154	102	50	0
45-49	180	205	186	144	97	48	0
50-54	147	167	191	130	89	45	0
55-59	117	134	152	130	79	40	0
60-64	90	103	117	120	76	35	0
65-69	65	74	84	96	66	31	0
70-74	42	48	55	63	50	25	0
75-79	24	27	31	35	32	16	0
80-84	10	12	14	16	16	8	0
85 and over	4	4	5	6	7	4	0
TOTAL	4 953	4 775	4 407	3 781	2 850	1 598	0
Total both sexes	10 001	9 481	8 769	7 530	5 687	3 193	0
Households *	1 594	1 388	1 307	1 150	890	507	0
Persons per household	6.27	6.83	6.71	6.55	6.39	6.30	...

* Assumed to equal the number of women aged 20-44.

Figure VIII
PROJECTION BY SEX AND AGE OF POPULATION OF A COMMUNITY OF INITIALLY 10 000 INHABITANTS,
BEING TRANSFERRED FROM ONE SETTLEMENT TO ANOTHER, IN THE COURSE OF 30 YEARS



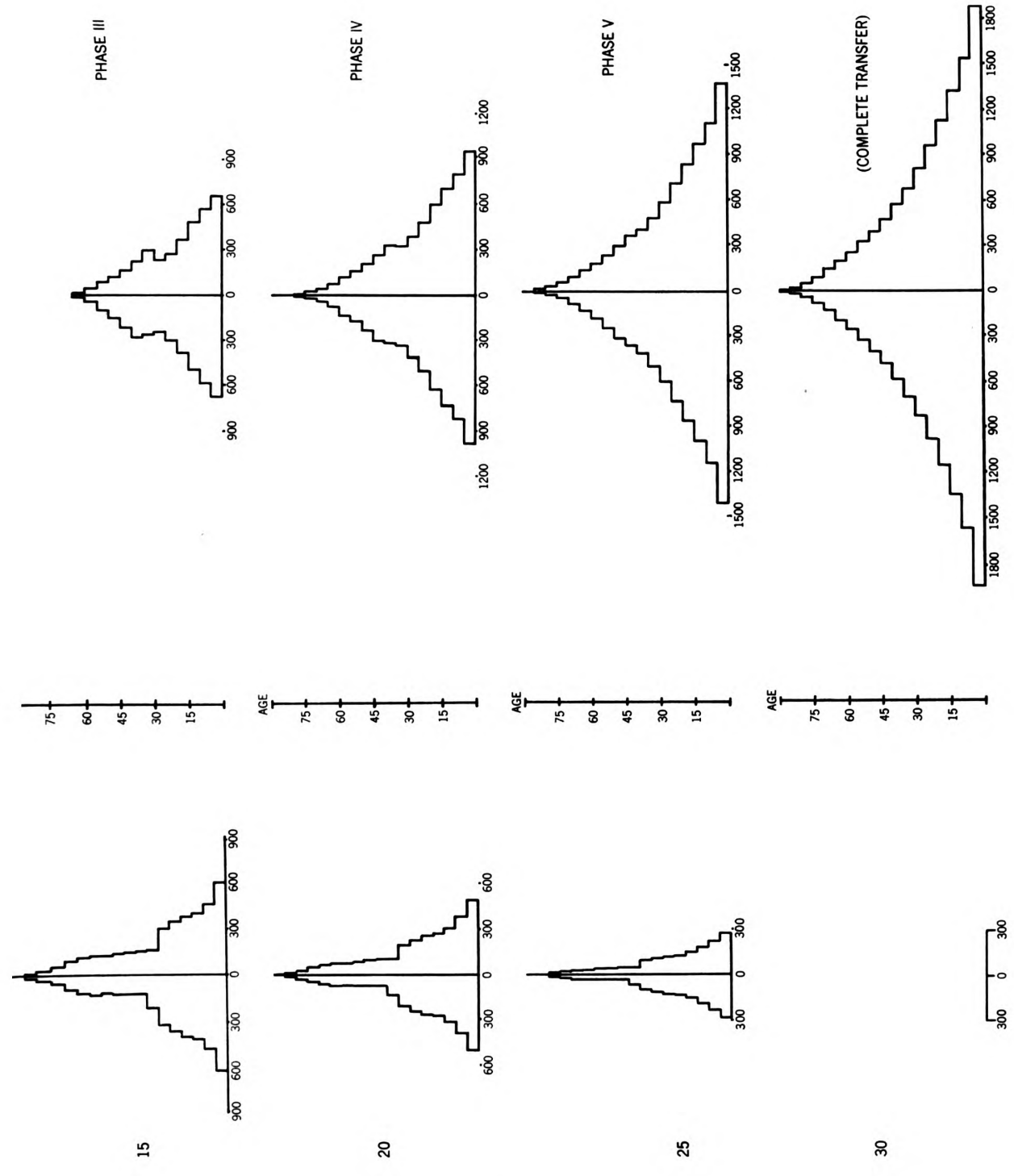
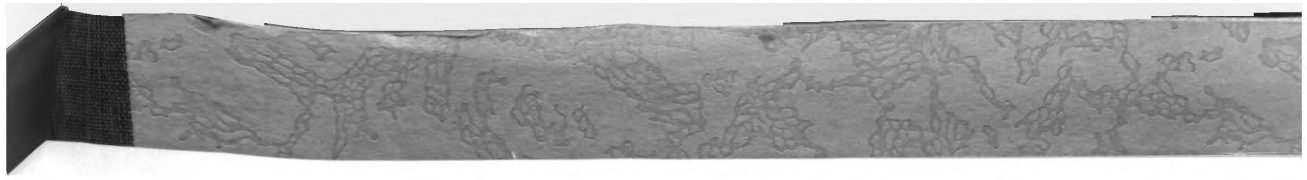


Table 48

PROJECTION OF POPULATION OF NEW SETTLEMENT FORMED IN THE PROCESS OF TRANSFER
OF A COMMUNITY OF INITIALLY 10 000 INHABITANTS

Sex and age	Time from beginning of migration (years)						
	0	5	10	15	20	25	30
Males	0	5	10	15	20	25	30
0-4	0	237	452	673	982	1 411	1 932
5-9	0	129	361	581	821	1 150	1 575
10-14	0	56	249	494	727	997	1 352
15-19	0	30	182	379	620	865	1 161
20-24	0	128	140	299	498	734	986
25-29	0	217	198	242	405	604	832
30-34	0	146	250	261	335	502	701
35-39	0	76	181	278	316	417	587
40-44	0	25	116	211	301	364	488
45-49	0	0	66	148	234	316	400
50-54	0	0	0	100	173	248	321
55-59	0	0	0	42	124	187	250
60-64	0	0	0	13	72	134	186
65-69	0	0	0	0	40	86	130
70-74	0	0	0	0	19	50	81
75-79	0	0	0	0	7	25	43
80-84	0	0	0	0	1	10	18
85 and over	0	0	0	0	0	3	6
TOTAL	0	1 044	2 195	3 721	5 675	8 103	11 049
Females							
0-4	0	231	440	655	957	1,374	1 882
5-9	0	126	353	567	801	1 122	1 536
10-14	0	55	243	481	708	971	1 318
15-19	0	29	177	369	603	841	1 129
20-24	0	200	136	290	483	712	958
25-29	0	126	249	235	393	586	808
30-34	0	71	177	294	324	486	679
35-39	0	30	121	223	333	404	569
40-44	0	0	79	67	264	367	475
45-49	0	0	47	122	206	297	393
50-54	0	0	0	87	158	237	321
55-59	0	0	0	43	119	185	256
60-64	0	0	0	13	76	138	197
65-69	0	0	0	0	44	94	142
70-74	0	0	0	0	22	57	93
75-79	0	0	0	0	8	30	52
80-84	0	0	0	0	2	12	23
85 and over	0	0	0	0	0	4	9
TOTAL	0	868	2 022	3 546	5 501	7 917	10 840
Total, both sexes	0	1 912	4 217	7 267	11 176	16 020	21 889
Households ^a	0	427	762	1 209	1 797	2 555	3 489
Persons per household	4.48	5.53	6.01	6.22	6.27	6.27

^a Assumed to equal the number of women aged 20-44.

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Table 46, one obtains that segment of the population which, at any time, remains at the old settlement; subtracting these segments from the total population of the community, one obtains the population found at any time in the new settlement. The results of these projections are shown in Tables 47 and 48 and plotted in Figure VIII.

Inspection of Figure VIII shows that the new settlement consists initially of young adults only, together with their children, most of them small; with time, other elements of the population are added until the initial community, which has increased in the meantime, has been completely assembled. Despite an initial loss of young adults, sufficient numbers of fairly young persons remain in the old settlement to accompany the older persons who are not ready to move until the transfer of the community is nearly complete.

The transfer of an isolated community, however, is not the object of the present study; the basic model is presented in such detail merely in order to show that it is not inconsistent with developments which may actually occur when migration is in progress.

3. Households

In a programme for land settlement, the basic unit considered is usually the family or household, which may be variously defined. Thus, in a land survey of areas suitable for settlement, it will often be determined how many households can reasonably be accommodated. Likewise, if settlers are being recruited from an area of land scarcity, the unit of recruitment will usually be the family or household. Households are sometimes selected for recruitment according to certain criteria of their composition.

The definition of households may, however, vary greatly from one area to another. In some societies, a household corresponds ordinarily to a nuclear family, composed of a father, a mother and their unmarried children. In other societies, it is more usual for extended families, i.e., groups of nuclear families having a common ancestor, to occupy jointly a large dwelling where they conduct their economic and household affairs under the direction of a senior family member. The physical layout of settlement villages will, of course, have to conform to the practical needs arising with varying degrees of co-operation between family units. Nevertheless, many of the facilities required by settlers (e.g., land acreage, schools, supplies, etc.) are more readily calculated in proportion to nuclear families, whether these live in separate units or jointly in an extended group. In speaking of households, therefore, we shall consider those of nuclear families, regardless of whether they constitute autonomous units or mere sub-units of a larger family complex.

Statistics on the detailed composition of households by persons of either sex and all ages are rare and, where found, rather unwieldy. No attempt is made here to delve into these matters. Instead, it will be assumed, rather arbitrarily, that a household exists wherever there is a woman of such age that she may constitute a principal working housewife. This status is probably attained

by a woman shortly after her marriage and is maintained until she is old enough to have an adult daughter, or a married son who, in turn, introduces a new principal housewife into the household. This approximation is very rough, as households of different types also occur for a variety of reasons, while not every woman of suitable age is a principal housewife. For present purposes, however, the number of households will be assumed to equal the number of women aged 20-44 years.⁷

In the population of origin,⁸ the average size of a household, so defined, is 6.27 persons. In the community-transfer model discussed so far, there is at first a rise in the average size of households remaining in the old settlement while, in the new settlement, households for the most part are at first small; eventually the average size of households in the population of origin is also approximated in the new settlement as transfer approaches completion. This development seems reasonable since households having many dependants are in a good position to enter a new settlement in its earliest phases.

Use will be made of this rough method of calculating households in the schemes presented further on.

4. Effects of migratory streams variously recruited

The model developed so far deals with the progressive and eventually complete transfer of a single community. This model is intended to serve in building a calculating scheme with which the effects of entire streams of migration can be determined. In making the transition from the movements of a single community to those of migratory streams, two separate principles are used. One concerns the completeness with which individual communities—however these may be defined—are being transferred; the other principle establishes the link between the population growth of individual new settlements and that of the entire region within which settlement takes place.

In the community-transfer model, several successive phases can be distinguished. Arbitrarily, we shall space these phases at intervals of 5 years in the basic model, referring by phase I to the position reached in the year 5, phase II the position in the year 10 and so forth. For the period from year 5 to year 25, during which transfers of the community are only partial, we can distinguish five phases. In addition, there are two extreme phases, one at the year 0, when migration is only initiated, the other at the year 30, when the transfer is complete. For the year 0, hypothetical numbers of persons, mostly young adults with their small children, have been indicated as potential migrants ready to move the instant an opportunity for migration occurs;⁹ we shall refer to

⁷ This assumption, though arbitrary, is not quite unrealistic. Thus, at the 1947 census of Malaya, 847,479 households were ascertained, while 814,322 women aged 20-44 years were enumerated; at the 1948 census of the Philippines, the number of households counted was 3,501,132 and the number of women aged 20-44 years was 3,207,531.

⁸ Assumed to be a stable population, with gross reproduction rate equal to 3, and an expectation of life at birth equal to 45 years.

⁹ See the figures of table 46 shown in parentheses.

these persons as pioneers, and to a movement exclusively composed of such persons as a pioneer migration.

As the results of calculations show, the structure and growth of settlement populations vary considerably with the criteria by which migrants are recruited from their communities of origin. Hence the necessity of distinguishing several successive phases, as regards the selections of migrants.

Under practical conditions, a process of migration ordinarily affects numerous villages in varying measure. So far as each village of origin is concerned, transfers, no matter how partial or how complete, are likely to be effected within relatively short time-periods, but recruitment is carried on simultaneously in numerous villages, and the movements are staggered in time. In the area of immigration, new settlements are being formed one after another and when the formation of some settlements is almost terminated, that of others is merely begun. Individual settlements may be constituted within comparatively brief periods, after which few additional migrants enter the particular settlement. The process of migration continues, however, as the migratory stream is being constantly re-distributed among new points of settlement.

It is therefore useful to consider two types of migratory effects. As regards particular places of settlement, immigration occurs ordinarily within one brief period, after which it is interrupted; the further growth of the settlement then depends on births and deaths occurring among the settlers and their offspring. For the entire settlement region, on the other hand, the continuous stream is nothing else but the summation of numerous discontinued movements to particular places; but here, aside from the natural increase of the population already settled, new migrants are constantly brought in, occupying an expanding area of particular settlement projects.

5. Methods of calculation

Mathematically rigorous treatment of this phenomenon has many complications; several assumptions, none of them empirically verified, are involved; and these assumptions imply a regularity of movements which can hardly be achieved in fact. As the subject is treated here for speculative purposes only, simplicity is preferable to great mathematical precision.

The calculations are carried out in two steps. In the first, a projection is made of the population of a newly formed settlement, with assumed rates of fertility and mortality,¹⁰ migration being assumed as *discontinued* by the end of a first brief period. In the second step, the results of this projection, for successive dates at equal intervals of time, are simply cumulated to show the calculated effect of *continuous* migration on the regional population.¹¹

¹⁰ The assumption, as indicated, is a constant gross reproduction rate equal to 3, and a constant expectation of life at birth equal to 45 years.

¹¹ Cumulation results as follows. In the first step are determined the populations, by groups of sex and age, resulting at the end of a five-year period of migration, as well as 5, 10, 15, etc., years later, migration being discontinued. If migration continues another

For the first step, the successive phases of the new village formed in the community transfer provide so many separate starting points. Assuming that any one given phase is attained at the end of one five-year period,¹² the further development of the population, by births and deaths, is determined with standard methods of population projections; these results are then cumulated in the second step. For a migration consisting of pioneers only, a separate calculation was needed to determine the effect obtained at the end of the first five-year period during which movements are assumed to occur.

Because of interest in the comparison of migratory effects for varying criteria governing the selection of migrants, it was deemed useful to reduce all calculations to one common measure. For this reason, it was assumed that, in each instance, 10,000 households of settlers are successfully established in the settlement area at the end of the first five-year period.¹³

6. Results: the extreme cases

(a) *Successive total transfers of communities*

The extreme case of total transfers of entire communities need not detain us for the present purposes. It is unlikely that land settlement will be carried out by complete transfer of villages, old villages being entirely abandoned, though this may happen in some instances as, for example, when a village must be displaced because of a river barrage. In the unlikely event that an entire migratory stream is composed in such fashion, village after village being transferred, its cross section, by groups of sex and age, is very similar in composition to the population of origin.¹⁴ In the present scheme, the population of origin has been assumed as a theoretically stable population, characterized by constant levels of fertility and mortality. If the stream of the movement has the same composition, then the population in each new settlement, and in the entire settlement region, will also have a composition by sex and age groups in constant, or very nearly constant, proportions. The rate of growth of the settlement population is that of the

5 years, the effect is the sum of the effect following immediately upon one five-year period of movements, and of the effect obtained for movements which occurred 5 to 10 years previously. Similarly, by summation of three successive effects, the effect of 15 years of continued movements is obtained; and so forth. This simple method of cumulation is possible because it has been assumed that levels of mortality and fertility remain constant in time.

¹² Here, a mathematical inconsistency is involved. In the community-transfer model, periods longer than 5 years were calculated for the attainment of phase II, III, etc. Because of aging, the population involved in the migration is composed somewhat differently than it would be if each phase could be completed in five years. As verified by calculations, however, this difference is trivial for the present purposes.

¹³ Households being defined, for this purpose, as equal to the number of women aged 20-44 years.

¹⁴ This statement is mathematically accurate if (a) each transfer is effected so rapidly that no aging occurs during the period of the transfer, or (b) transfers involving longer periods of time occur in such a sequence that a constant proportion of the total population is being moved at any moment of time. When these conditions are not accurately met, the statement remains true within the limits of accuracy needed for the present discussion.

population model itself, to which is added the rate at which new migrants are brought into the area.

(b) *The recruitment of pioneers only*

Extreme instability of the settlement population can result, on the other hand, if recruitment of migrants is narrowly confined to certain sex-age groups only. The most extreme case considered here is the movement of pioneers only, as defined by the figures of Table 46 shown in parentheses. Such selection of migrants can occur under special circumstances, as in the case of plantation labour, jungle clearance projects and the like, where the greatest emphasis is placed on the physical endurance of young workers. The conditions would ordinarily be such that households, in the proper sense of the word, cannot be established instantly upon arrival but only, perhaps, in the course of five years. A special calculation was therefore required to determine how many pioneers (including some young women and small children) would have to move if, within five years of recruitment, a total of 10,000 households is to be successfully established.¹⁵

As determined in the calculation, the initial composition of the contingent of pioneers, at the time when recruitment begins, is as indicated in Table 49. The group comprises 16,810 young adult men, half of them aged 20-24 years, 10,368 young adult women, most of them aged 15-19, and 5,068 children, most of them quite small.¹⁶

Table 49

INITIAL COMPOSITION BY SEX-AGE GROUPS OF A CONTINGENT OF PIONEER MIGRANTS AT THE MOMENT OF RECRUITMENT, ACCORDING TO STATED ASSUMPTIONS

Age group	Males	Females	Both sexes
0-4	2 116	2 061	4 177
5-9	423	413	836
10-14	28	27	55
15-19	2 396	6 532	8 928
20-24	8 156	3 168	11 324
25-29	4 811	668	5 479
30-34	1 447	—	1 447
35 and over	—	—	—
TOTAL	19 377	12 869	32 246

Assuming that this contingent of pioneers succeeds in establishing 10,000 households at the end of five

¹⁵ A projection was first carried out for an arbitrary number of pioneers, composed by sex and age according to the assumptions made. By this projection, a coefficient was determined, with which the initially arbitrary numbers had to be multiplied to result, at the end of five years, in precisely 10,000 households.

¹⁶ This is the composition of the contingent of pioneers at the beginning of the first five-year period. If recruitment proceeds in the course of five years the recruits would on an average be 2½ years older and have somewhat more children, including some older children.

years, and that no new migrants are then added, the further growth of the settlement, as a result of births, deaths and aging of the population, will proceed as in Table 50 and as illustrated in Figure IX, where the percentage sex-age composition in the resulting settlement, at successive future dates, is also compared with the structure of the population of origin.

The extreme instability of a settlement of this type is very obvious. Thus, at the end of 15 years, children and workers of relatively mature ages will be numerous, while there will be very few young workers. A relative shortage of adult women will also persist. In a less extreme form, this situation will also recur after another 25 or 30 years when most of the grandchildren of the initial migrants will have been born but will not yet have reached adolescence. Thus, it will take the settlement at least 60 years to approach stability, i.e., when the initial pioneers, if still living, have become great-grandparents.

This abnormal development is also partly reflected in estimated changes in the average sizes of households. Small at first, households increase in size with additional births while most of the children are not yet old enough to establish households of their own. After about 20 years, the daughters of the pioneers begin to be principal housewives, many new households are formed, and their average size decreases. With a smaller amplitude, this fluctuation in average sizes of households is repeated in the next parental generation.¹⁷

It is very doubtful whether a settlement of this type can develop the social cohesion necessary to make it endure. One crisis will arise at the time when there is a dearth of young workers, though children are numerous; a crisis of a different kind will result at a time when the formation of numerous new households presses on available land resources. To avert such difficulties, provision may have to be made from the outset for the eventual absorption of another contingent of pioneer migrants preferably about 15 years after the establishment of the initial settlement. This new contingent would then fill some of the gaps which arise as a result of the aging of the earlier contingent, as illustrated in Table 51 below. It can safely be concluded that settlements formed by pioneers only are highly unstable, unless further supplemented with the arrival of new settlers.

If pioneers only are recruited but recruitment occurs continuously, the combined population of settlements will develop as indicated in Table 52. The resulting age structures are also illustrated in Figure IX. It will be noted that the continuing arrival of migrants permits the age structure of settlements to approach stability more rapidly, on condition that additional migrants can be continuously introduced into each place of settlement, which is unlikely. Even then, because of this peculiar selection of migrants, some distortion of the age structure will persist for a considerable time.

¹⁷ Individual households, inevitably, experience varying difficulties as their composition changes with the passage of time. But the difficulties of individual households are aggravated when they are being experienced by most of the households at the same time; under such conditions, little help can be expected from neighbours.

Table 50

PROJECTION OF POPULATION OF A SETTLEMENT RESULTING FROM DISCONTINUED RECRUITMENT OF PIONEERS ONLY,
10 000 HOUSEHOLDS BEING ESTABLISHED AT THE END OF THE FIRST FIVE-YEAR PERIOD

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 217	6 720	5 799	4 857	5 085	7 133	16 635
5-9	1 965	4 845	6 241	5 386	4 511	4 722	12 684
10-14	414	1 923	4 741	6 107	5 270	4 414	10 779
15-19	27	405	1 881	4 638	5 974	5 156	10 129
20-24	2 323	26	392	1 821	4 490	5 783	9 564
25-29	7 840	2 234	25	377	1 751	4 317	8 034
30-34	4 620	7 520	2 143	24	362	1 680	5 662
35-39	1 383	4 413	7 182	2 047	23	346	3 855
40-44	—	1 310	4 180	6 804	1 939	22	3 488
45-49	—	—	1 224	3,905	6 356	1 811	3 891
50-54	—	—	—	1 120	3 573	5 816	4 125
55-59	—	—	—	—	994	3 172	2 842
60-64	—	—	—	—	—	844	979
65-69	—	—	—	—	—	—	167
70-74	—	—	—	—	—	—	8
75-79	—	—	—	—	—	—	426
80-84	—	—	—	—	—	—	712
85 and over	—	—	—	—	—	—	131
TOTAL	23 789	29 396	33 808	37 086	40 328	45 216	94 111
Females							
0-4	5 082	6 546	5 649	4 731	4 953	6 949	16 204
5-9	1 917	4 726	6 088	5 254	4 400	4 606	12 374
10-14	403	1 873	4 619	5 950	5 135	4 300	10 502
15-19	27	393	1 829	4 510	5 810	5 014	9 851
20-24	6 317	26	380	1 769	4 362	5 619	9 290
25-29	3 043	6 068	25	365	1 699	4 190	7 796
30-34	639	2 914	5 811	24	350	1 627	5 487
35-39	—	610	2 783	5 550	23	334	3 754
40-44	—	—	580	2 647	5 280	22	3 394
45-49	—	—	—	547	2 499	4 984	3 826
50-54	—	—	—	—	509	2 325	4 124
55-59	—	—	—	—	—	463	2 913
60-64	—	—	—	—	—	—	1 035
65-69	—	—	—	—	—	—	184
70-74	—	—	—	—	—	—	10
75-79	—	—	—	—	—	—	1 439
80-84	—	—	—	—	—	—	364
85 and over	—	—	—	—	—	—	24
TOTAL	17 428	23 156	27 764	31 347	35 020	40 433	92 551
Total, both sexes	41 217	52 552	61 572	68 433	75 348	85 649	186 662
Households ^a	9 999	9 618	9 579	10 355	11 714	11 792	29 701
Persons per household	4.12	5.46	6.43	6.61	6.43	7.26	6.28

^a Assumed equal to the number of women aged 20-44.

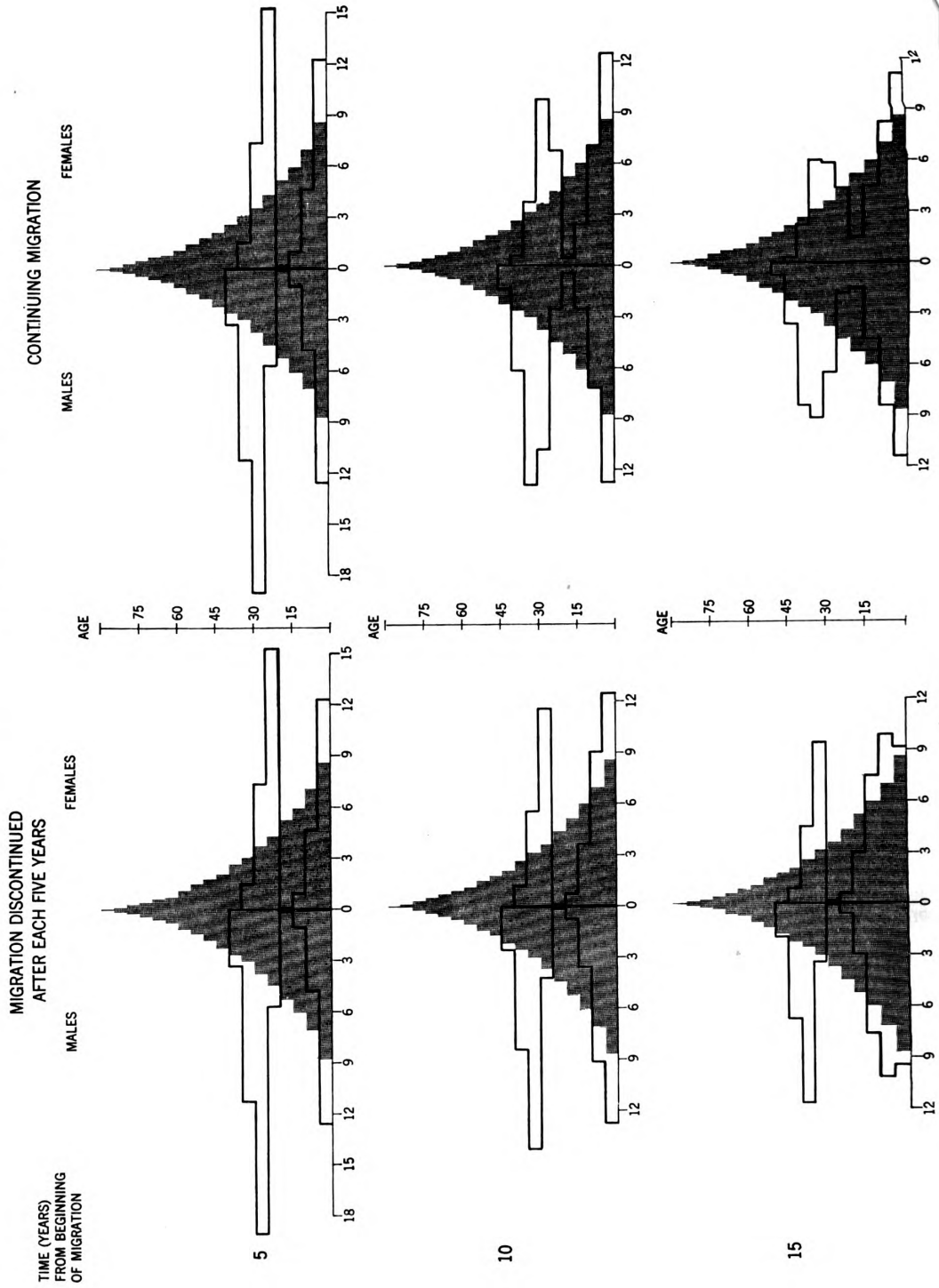
Table 51

EFFECT OF RECRUITMENT OF AN ADDITIONAL CONTINGENT OF PIONEERS FIFTEEN YEARS AFTER THE INITIAL ESTABLISHMENT OF A PIONEER SETTLEMENT: SEX-AGE COMPOSITION OF INITIAL SETTLERS, NEW SETTLERS AND SUM OF THE TWO

<i>Sex and age</i>	<i>Initial settlers^a</i>	<i>New settlers^b</i>	<i>Sum of the two</i>
<i>Males</i>			
0-4	4 857	5 217	10 074
5-9	5 386	1 965	7 351
10-14	6 107	414	6 521
15-19	4 638	27	4 665
20-24	1 821	2 323	4 144
25-29	377	7 840	8 217
30-34	24	4 620	4 644
35-39	2 047	1 383	3 430
40-44	6 804	—	6 804
45-49	3 905	—	3 905
50-54	1 120	—	1 120
55 and over	—	—	—
TOTAL	37 086	23 789	60 875
<i>Females</i>			
0-4	4 731	5 082	9 813
5-9	5 254	1 917	7 171
10-14	5 950	403	6 353
15-19	4 510	27	4 537
20-24	1 769	6 317	8 086
25-29	365	3 043	3 408
30-34	24	639	663
35-39	5 550	—	5 550
40-44	2 647	—	2 647
45-49	547	—	547
50 and over	—	—	—
TOTAL	31 347	17 428	48 775
Total, both sexes	68 433	41 217	109 650
Households^c	10 355	9 999	20 354
Persons per household	6.61	4.12	5.39

^a According to year 20 in Table 50.
^b According to year 5 in Table 50.
^c Assumed to equal the number of women aged 20-44.

Figure IX
PERCENTAGE SEX-AGE COMPOSITION OF POPULATIONS RESULTING FROM THE MIGRATION OF PIONEERS ONLY,
IN COMPARISON WITH THE STABLE POPULATION OF ORIGIN



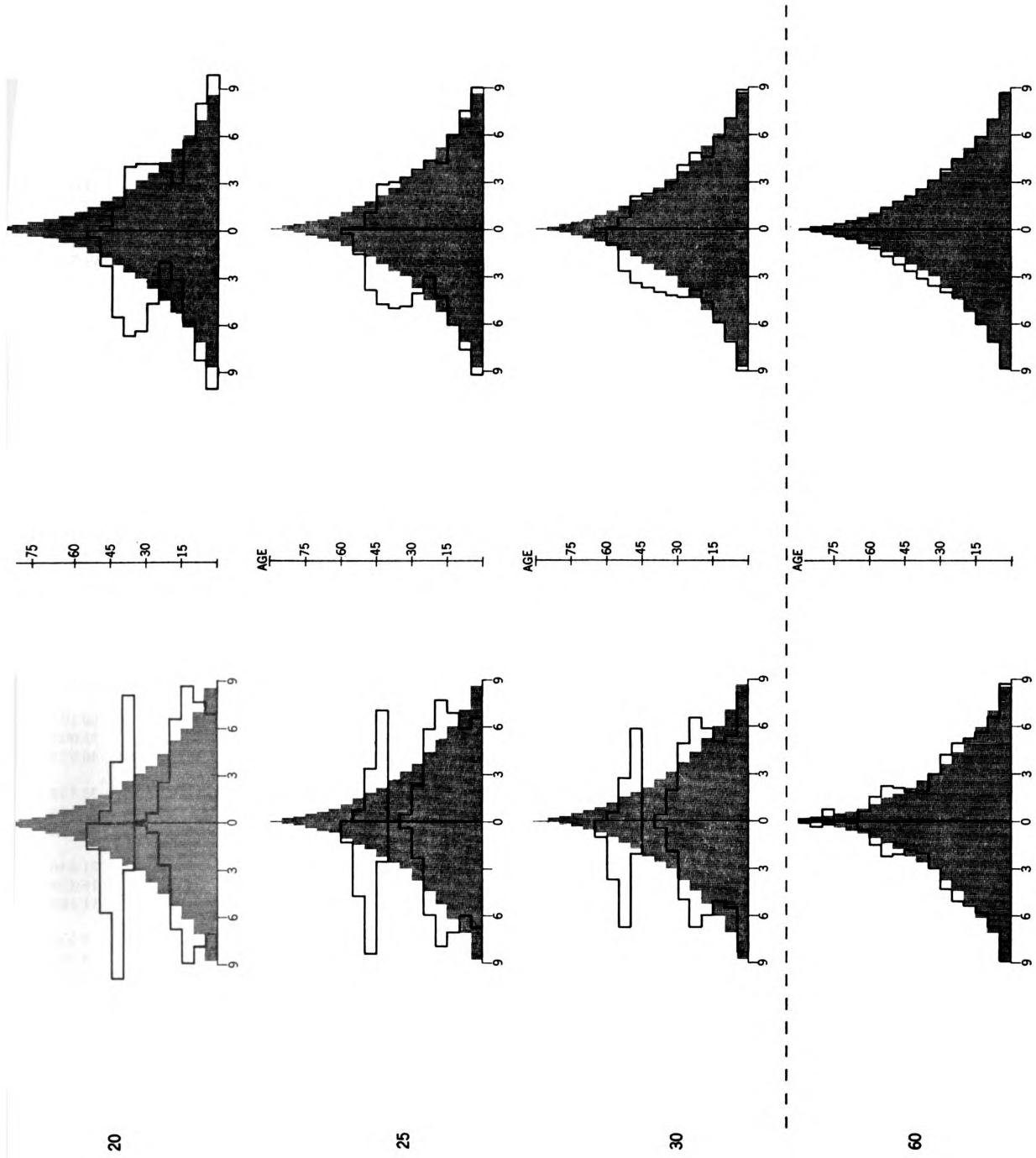


Table 52

PROJECTION OF SETTLEMENT POPULATION ACCUMULATING FROM CONTINUOUS RECRUITMENT OF PIONEER MIGRANTS ONLY ^a

Sex and age	Time from beginning of migration (years)						
	0	10	15	20	25	30	60
Males							
0-4	5 217	11 937	17 736	22 593	27 678	34 811	109 180
5-9	1 965	6 810	13 051	18 437	22 948	27 670	87 912
10-14	414	2 337	7 078	13 185	18 455	22 869	74 024
15-19	27	432	2 313	6 951	12 925	18 081	61 899
20-24	2 323	2 349	2 741	4 562	9 052	14 835	52 442
25-29	7 840	10 074	10 099	10 476	12 227	16 544	49 068
30-34	4,620	12 140	14 283	14 307	14 669	16 349	43 980
35-39	1 383	5 796	12 978	15 025	15 048	15 394	37 982
40-44	—	1 310	5 490	12 294	14 233	14 255	32 329
45-49	—	—	1 224	5 129	11 485	13 296	26 942
50-54	—	—	—	1 120	4 693	10 509	21 091
55-59	—	—	—	—	994	4 166	15 061
60-64	—	—	—	—	—	844	10 371
65-69	—	—	—	—	—	—	7 442
70-74	—	—	—	—	—	—	5 177
75-79	—	—	—	—	—	—	3 129
80-84	—	—	—	—	—	—	1 286
85 and over	—	—	—	—	—	—	169
TOTAL	23 789	53 185	86 993	124 079	164 407	209 623	639 484
Females							
0-4	5 082	11 628	17 277	22 008	26 961	33 910	106 355
5-9	1 917	6 643	12 731	17 985	22 385	26 991	85 758
10-14	403	2 276	6 895	12 845	17 980	22 280	72 121
15-19	27	420	2 249	6 759	12 569	17 583	60 193
20-24	6 317	6 343	6 723	8 492	12 854	18 473	55 003
25-29	3 043	9 111	9 136	9 501	11 200	15 390	46 955
30-34	639	3 553	9 364	9 388	9 738	11 365	38 142
35-39	—	610	3 393	8 943	8 966	9 300	31 185
40-44	—	—	580	3 227	8 507	8 529	26 114
45-49	—	—	—	547	3 046	8 030	21 446
50-54	—	—	—	—	509	2 834	16 394
55-59	—	—	—	—	—	463	11 163
60-64	—	—	—	—	—	—	7 229
65-69	—	—	—	—	—	—	5 098
70-74	—	—	—	—	—	—	3 658
75-79	—	—	—	—	—	—	2 319
80-84	—	—	—	—	—	—	444
85 and over	—	—	—	—	—	—	24
TOTAL	17 428	40 584	68 348	99 695	134 715	175 148	589 601
Total, both sexes	41 217	93 769	155 341	223 774	299 122	384 771	1 229 085
Households ^a	9 999	19 617	29 196	39 551	51 265	63 057	197 399
Persons per household	4.12	4.78	5.32	5.66	5.83	6.10	6.23

^a Assumed to equal the number of women aged 20-44.

7. Results for intermediate patterns of migration

Two extreme cases have been considered so far: the complete transfer of entire communities; and the recruitment of pioneer migrants only. Under most practical conditions, recruitment for land settlement will be governed by criteria which are intermediate between the two extremes. The transfer of entire communities, while ensuring continuity of the social relationships already established, would involve large expenditures and be economically irrational, unless very great value is attached to keeping existing communities socially intact. The recruitment of pioneers only, while perhaps economically expedient in the very short run, is likely to encounter formidable social difficulties within a few years. The actual phase of recruitment will ordinarily correspond to some balance between the economic and the social objectives which are being pursued.

The effects of migration conforming to some intermediate patterns of recruitment have been calculated according to the given successive phases in the transfer of a community, by the methods described in the foregoing pages. The first set of calculations, i.e., migration being discontinued at the end of the first five-year period, as may very well be the case for such particular place of settlement, leads to the results shown in Tables 53 to 57. The second set of calculations, in which the effects of continuous migration are obtained through cumulation, are presented in Tables 58 to 69. By comparing the various results, several interesting inferences can be made.

Depending on the phase of recruitment (Table 50 for pioneers only, and Tables 53 to 57 for other phases),

individual settlements, for which migration is discontinued, will develop as follows; Households, numbering 10,000 at the end of the first five-year period, will number 11,792, 14,053, 18,240, 19,307, 19,382 or 19,265 at the end of 30 years, for each successive scheme of recruitment; at the end of 60 years, they will number 29,701, 33,131, 39,685, 42,043, 42,438 or 42,296; in other words, the increase in numbers of households will be slow at first in the case of pioneers, but increasingly more rapid with more advanced phases, up to phase III. The opposite can be observed for rates of population growth. Thus, a pioneer settlement numbering 41,217 individuals at the end of 5 years and 85,649 at the end of 30 years, increases its population by 108 per cent within the 25 years; in the same period, population increase is by 110 per cent if recruitment is as in phase I, by 105 per cent according to phase II, by 100 per cent according to phase III, by 96 per cent according to phase IV and by 93 per cent according to phase V. There are sharp fluctuations in average sizes of households and age composition if recruitment corresponds to early phases, while for more advanced phases of recruitment, stability of population structure is attained quite rapidly. Similar observations also apply to the progressive establishment of a balance in the number of both sexes, stability being approached the more rapidly the more advanced the criteria in the initial selection of migrants.

Many of these observations can also be inferred from the age pyramids presented in Figure X, where the cumulative effects of continuing migration are considered; there is a more rapid approach to stability in early periods, but complete stability of structure is never attained.

Table 53

PROJECTION OF POPULATION OF A SETTLEMENT RESULTING FROM DISCONTINUED RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase I* OF THE COMMUNITY-TRANSFER MODEL

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 573	6 517	5 861	5 522	6 310	8 321	18 627
5-9	3 022	5 176	6 052	5 443	5 128	5 860	14 530
10-14	1 322	2 957	5 065	5 922	5 326	5 018	12 258
15-19	709	1 293	2 893	4 955	5 793	5 210	11 043
20-24	3 014	686	1 252	2 801	4 797	5 608	10 111
25-29	5 086	2 898	660	1 204	2 693	4 612	8 670
30-34	3 425	4 878	2 780	633	1 155	2 583	6 605
35-39	1 794	3 271	4 659	2 655	605	1 103	4 784
40-44	597	1 699	3 099	4 413	2 515	573	3 965
45-49	—	558	1 587	2 895	4 123	2 350	3 932
50-54	—	—	511	1 452	2 649	3 773	4 000
55-59	—	—	—	454	1 289	2 352	3 037
60-64	—	—	—	—	385	1 094	1 505
65-69	—	—	—	—	—	305	533
70-74	—	—	—	—	—	—	208
75-79	—	—	—	—	—	—	553
80-84	—	—	—	—	—	—	461
85 and over	—	—	—	—	—	—	105
TOTAL	24 542	29 933	34 419	38 349	42 768	48 762	104 927
Females							
0-4	5 429	6 348	5 709	5 379	6 146	8 105	18 145
5-9	2 948	5 049	5 904	5 309	5 002	5 716	14 173
10-14	1 288	2 881	4 934	5 770	5 188	4 888	11 943
15-19	690	1 258	2 813	4 818	5 634	5 066	10 739
20-24	4 684	667	1 217	2 720	4 659	5 449	9 823
25-29	2 961	4 499	641	1 169	2 613	4 475	8 416
30-34	1 659	2 836	4 309	614	1 120	2 502	6 399
35-39	695	1 584	2 708	4 115	586	1 070	4 635
40-44	—	661	1 507	2 576	3 915	557	3 858
45-49	—	—	624	1 422	2 431	3 695	3 864
50-54	—	—	—	581	1 323	2 262	4 000
55-59	—	—	—	—	529	1 204	3 112
60-64	—	—	—	—	—	463	1 591
65-69	—	—	—	—	—	—	586
70-74	—	—	—	—	—	—	239
75-79	—	—	—	—	—	—	1 067
80-84	—	—	—	—	—	—	354
85 and over	—	—	—	—	—	—	70
TOTAL	20 354	25 783	30 366	34 473	39 146	45 452	103 014
Total both sexes	44 896	55 716	64 785	72 822	81 914	94 214	207 941
Households^a	9 999	10 247	10 382	11 194	12 893	14 053	33 131
Persons per household	4.49	5.44	6.24	6.51	6.35	6.70	6.28

^a Assumed to equal the number of women aged 20-44.

Table 54

PROJECTION OF POPULATION OF A SETTLEMENT RESULTING FROM DISCONTINUED RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase II* OF THE COMMUNITY-TRANSFER MODEL

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 918	6 041	6 316	7 165	8 690	10 385	22 197
5-9	4 738	5 496	5 610	5 866	6 654	8 070	17 903
10-14	3 269	4 636	5 378	5 489	5 740	6 511	15 075
15-19	2 383	3 198	4 535	5 261	5 370	5 615	12 859
20-24	1 840	2 307	5 096	4 390	5 093	5 199	11 172
25-29	2 588	1 769	2 218	2 977	4 221	4 897	9 746
30-34	3 268	2 482	1 697	2 128	2 856	4 049	8 243
35-39	2 374	3 121	2 371	1 621	2 032	2 728	6 588
40-44	1 518	2 249	2 957	2 246	1 536	1 925	5 147
45-49	871	1 418	2 101	2 762	2 098	1 435	4 238
50-54	—	797	1 297	1 922	2 527	1 920	3 708
55-59	—	—	707	1 151	1 706	2 243	3 225
60-64	—	—	—	600	977	1 448	2 359
65-69	—	—	—	—	475	774	1 319
70-74	—	—	—	—	—	338	699
75-79	—	—	—	—	—	—	338
80-84	—	—	—	—	—	—	235
85 and over	—	—	—	—	—	—	107
TOTAL	28 767	33 514	38 283	43 578	49 975	57 537	125 158
Females							
0-4	5 764	5 884	6 153	6 979	8 465	10 116	21 622
5-9	4 621	5 361	5 472	5 722	6 490	7 872	17 464
10-14	3 185	4 516	5 239	5 348	5 592	6 343	14 687
15-19	2 317	3 110	4 409	5 115	5 222	5 460	12 504
20-24	1 787	2 241	3 008	4 264	4 947	5 050	10 852
25-29	3 265	1 717	2 153	2 889	4 096	4 752	9 458
30-34	2 322	3 127	1 644	2 062	2 767	3 923	7 987
35-39	1 592	2 218	2 986	1 570	1 969	2 642	6 382
40-44	1 034	1 514	2 110	2 841	1 494	1 873	5 006
45-49	612	976	1 429	1 992	2 682	1 410	4 164
50-54	—	569	908	1 330	1 853	2 495	3 707
55-59	—	—	518	826	1 210	1 686	3 303
60-64	—	—	—	454	724	1 060	2 495
65-69	—	—	—	—	374	596	1 448
70-74	—	—	—	—	—	278	804
75-79	—	—	—	—	—	—	408
80-84	—	—	—	—	—	—	390
85 and over	—	—	—	—	—	—	109
TOTAL	26 499	31 233	36 029	41 392	47 885	55 556	122 790
Total, both sexes	55 266	64 747	74 312	84 970	97 860	113 093	247 948
Households ^a	10 000	10 817	11 901	13 626	15 273	18 240	39 685
Persons per household	5.53	5.99	6.24	6.24	6.41	6.20	6.25

^a Assumed to equal the number of women aged 20-44.

Table 55

PROJECTION OF POPULATION OF A SETTLEMENT RESULTING FROM DISCONTINUED RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase III* OF THE COMMUNITY-TRANSFER MODEL

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 566	6 076	6 910	8 126	9 490	10 790	23 361
5-9	4 809	5 169	5 643	6 417	7 547	8 813	19 080
10-14	4 092	4 706	5 058	5 522	6 279	7 385	16 294
15-19	3 136	4 003	4 604	4 948	5 402	6 143	13 847
20-24	2 472	3 036	3 875	4 457	4 790	5 230	11 723
25-29	2 002	2 377	2 919	3 726	4 285	4 606	10 003
30-34	2 155	1 920	2 280	2 800	3 574	4 110	8 565
35-39	2 299	2 058	1 834	2 178	2 674	3 414	7 196
40-44	1 747	2 178	1 950	1 737	2 063	2 533	5 837
45-49	1 231	1 632	2 035	1 822	1 623	1 927	4 636
50-54	827	1 126	1 493	1 862	1 667	1 485	3 730
55-59	350	734	1 000	1 325	1 653	1 480	3 034
60-64	104	297	623	849	1 125	1 403	2 394
65-69	—	82	235	494	673	891	1 651
70-74	—	—	58	167	352	479	919
75-79	—	—	—	35	101	213	453
80-84	—	—	—	—	17	48	182
85 and over	—	—	—	—	—	5	79
TOTAL	30 790	35 394	40 517	46 465	53 315	60 955	132 984
Females							
0-4	5 421	5 919	6 731	7 916	9 245	10 510	22 757
5-9	4 691	5 042	5 505	6 260	7 362	8 598	18 612
10-14	3 986	4 585	4 928	5 380	15 874	7 195	15 874
15-19	3 050	3 892	4 477	4 812	5 253	5 974	13 466
20-24	2 401	2 950	3 764	4 330	4 654	5 080	11 388
25-29	1 942	2 306	2 834	3 616	4 159	4 471	9 707
30-34	2 430	1 860	2 208	2 714	3 463	3 983	8 298
35-39	1 846	2 321	1 776	2 109	2 592	3 307	6 972
40-44	1 381	1 756	2 208	1 690	2 006	2 466	5 678
45-49	1 012	1 304	1 657	2 084	1 595	1 893	4 557
50-54	719	942	1 213	1 542	1 939	1 484	3 730
55-59	359	654	857	1 104	1 403	1 764	3 108
60-64	110	315	573	751	967	1 229	2 533
65-69	—	91	259	472	618	796	1 813
70-74	—	—	68	193	351	460	1 058
75-79	—	—	—	43	123	223	547
80-84	—	—	—	—	22	62	232
85 and over	—	—	—	—	—	7	118
TOTAL	29 348	33 937	39 058	45 016	51 870	59 502	130 448
Total, both sexes	60 138	69 331	79 575	91 481	105 185	120 457	263 432
Households *	10 000	11 193	12 790	14 459	16 874	19 307	42 043
Persons per household	6.01	6.19	6.22	6.33	6.23	6.24	6.27

* Assumed to equal the number of women aged 20-44.

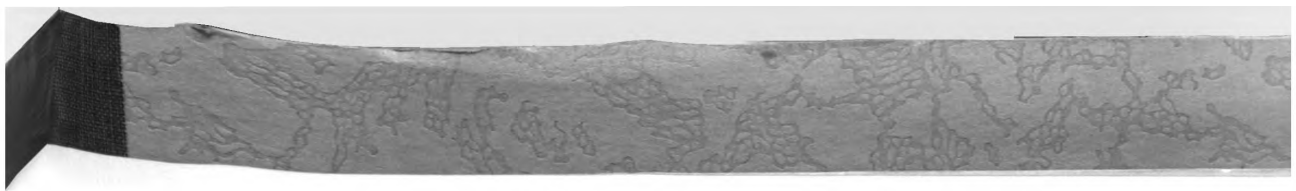


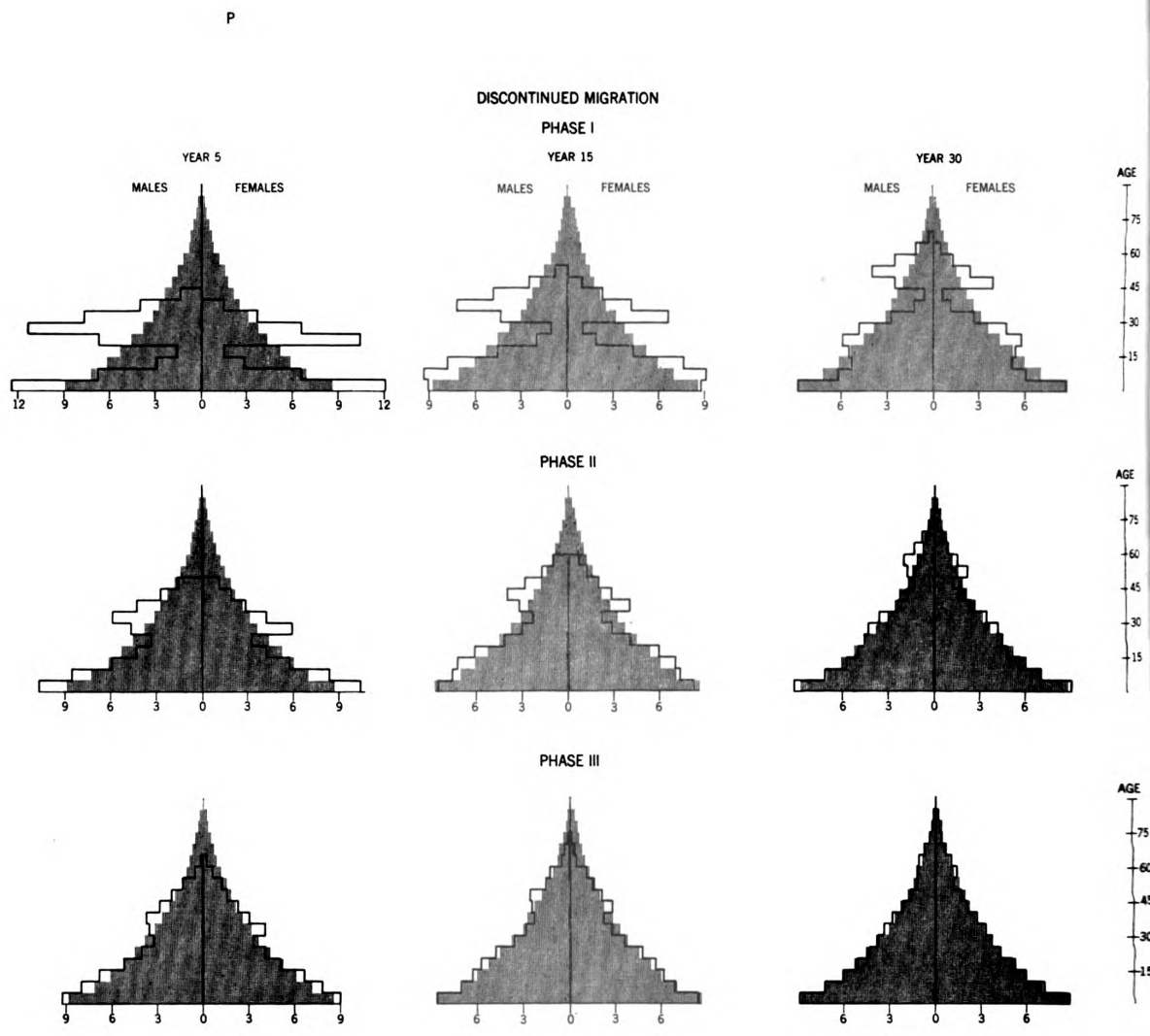
Table 56

PROJECTION OF POPULATION OF A SETTLEMENT RESULTING FROM DISCONTINUED RECRUITMENT
OF MIGRANTS SELECTED AS IN *Phase IV* OF THE COMMUNITY-TRANSFER MODEL

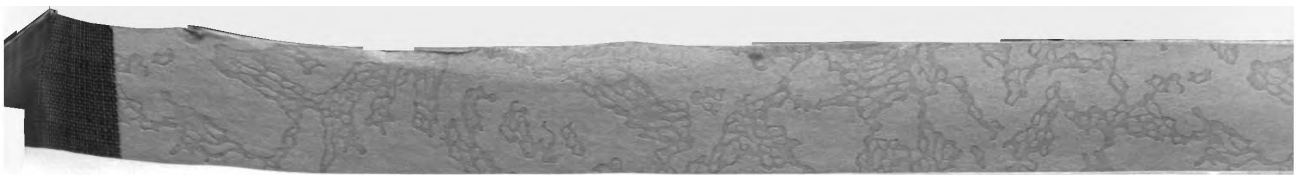
<i>Sex and age</i>	<i>Time from beginning of migration (years)</i>						
	5	10	15	20	25	30	60
Males							
0-4	5 466	6 250	7 236	8 349	9 497	10 727	23 533
5-9	4 569	5 076	5 804	6 720	7 754	8 820	19 224
10-14	4 046	4 471	4 967	5 679	6 576	7 587	16 526
15-19	3 453	3 958	4 374	4 859	5 556	6 433	14 147
20-24	2 769	3 343	3 832	4 234	4 704	5 379	11 955
25-29	2 254	2 662	3 214	3 684	4 071	4 523	10 062
30-34	1 862	2 162	2 553	3 083	3 534	3 905	8 515
35-39	1 762	1 778	2 065	2 438	2 945	3 375	7 200
40-44	1 674	1 669	1 684	1 956	2 310	2 790	5 995
45-49	1 304	1 564	1 559	1 573	1 827	2 158	4 855
50-54	964	1 193	1 431	1 426	1 439	1 672	3 837
55-59	687	856	1 059	1 270	1 266	1 277	2 978
60-64	400	583	727	899	1 078	1 075	2 276
65-69	222	317	462	576	712	854	1 632
70-74	104	158	226	329	410	507	1 013
75-79	37	63	96	137	199	248	508
80-84	8	18	30	46	65	95	205
85 and over	—	2	6	10	16	22	67
TOTAL	31 581	36 123	41 325	47 268	53 959	61 447	134 528
Females							
0-4	5 324	6 088	7 049	8 133	9 251	10 450	22 924
5-9	4 457	4 951	5 662	6 556	7 564	8 603	18 753
10-14	3 941	4 356	4 839	5 533	6 407	7 392	16 101
15-19	3 358	3 848	4 253	4 725	5 402	6 256	13 757
20-24	2 690	3 248	3 721	4 113	4 570	5 224	11 612
25-29	2 188	2 584	3 120	3 574	3 951	4 390	9 766
30-34	1 804	2 095	2 475	2 988	3 423	3 784	8 251
35-39	1 853	1 723	2 001	2 364	2 854	3 269	6 975
40-44	1 466	1 763	1 639	1 904	2 249	2 715	5 834
45-49	1 147	1 384	1 663	1 547	1 797	2 123	4 773
50-54	881	1 067	1 288	1 548	1 439	1 672	3 834
55-59	660	802	971	1 172	1 408	1 309	3 051
60-64	423	578	703	851	1 027	1 234	2 407
65-69	244	348	476	579	700	845	1 792
70-74	120	182	259	354	431	521	1 165
75-79	44	76	116	165	225	274	613
80-84	10	22	38	58	83	113	262
85 and over	—	3	7	13	21	31	96
TOTAL	30 610	35 118	40 281	46 177	52 802	60 205	131 966
Total, both sexes	62 191	71 241	81 606	93 445	106 761	121 652	266 494
Households^a	10 001	11 413	12 956	14 943	17 047	19 382	42 438
Persons per household	6.22	6.24	6.30	6.25	6.26	6.28	6.28

^a Assumed to equal the number of women aged 20-44.

PERCENTAGE SEX-AGE COMPOSITION POPULATIONS RESULTING FROM MIGRATORY CONTINGENTS RECRUITED BY VARYING



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CRITERIA, COMPARED WITH THE STABLE POPULATION OF ORIGIN (YEARS 5, 15 AND 30 AFTER BEGINNING OF MIGRATION)

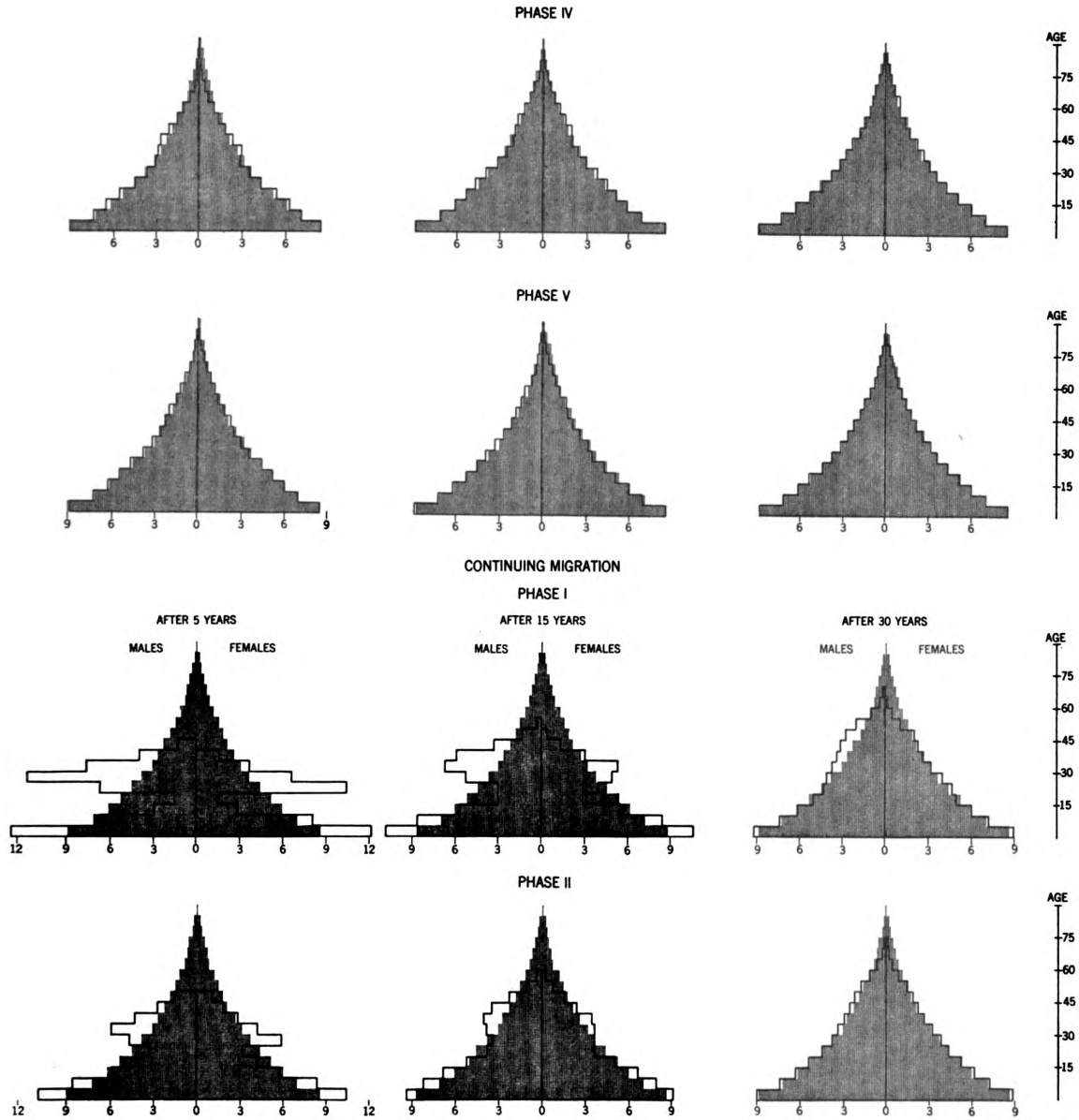


Table 57

PROJECTION OF POPULATION OF A SETTLEMENT RESULTING FROM DISCONTINUED RECRUITMENT
OF MIGRANTS SELECTED AS IN *Phase V* OF THE COMMUNITY-TRANSFER MODEL

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 520	6 332	7 255	8 268	9 390	10 677	23 468
5-9	4 499	5 126	5 881	6 738	7 678	8 720	19 128
10-14	3 901	4 402	5 016	5 755	6 593	7 513	16 437
15-19	3 385	3 816	4 306	4 907	5 630	6 450	14 113
20-24	2 869	3 277	3 694	4 169	4 750	5 450	11 972
25-29	2 364	2 759	3 151	3 552	4 008	4 567	10 078
30-34	1 963	2 268	2 646	3 022	3 407	3 844	8 475
35-39	1 633	1 875	2 166	2 527	2 886	3 254	7 119
40-44	1 425	1 547	1 776	2 052	2 394	2 734	5 938
45-49	1 237	1 331	1 445	1 659	1 917	2 236	4 867
50-54	971	1 132	1 218	1 322	1 518	1 754	3 887
55-59	731	862	1 005	1 081	1 174	1 348	3 008
60-64	525	620	732	853	918	996	2 240
65-69	334	416	491	580	676	727	1 573
70-74	195	238	296	349	413	481	993
75-79	96	118	144	179	211	250	526
80-84	37	46	56	69	85	100	215
85 and over	11	13	16	20	25	30	68
TOTAL	31 696	36 178	41 294	47 102	53 673	61 131	134 105
Females							
0-4	5 377	6 168	7 067	8 053	9 147	10 401	22 861
5-9	4 389	5 001	5 736	6 572	7 489	8 507	18 660
10-14	3 800	4 289	4 887	5 606	6 423	7 319	16 015
15-19	3 291	3 710	4 188	4 772	5 474	6 271	13 724
20-24	2 787	3 183	3 588	4 050	4 615	5 294	11 629
25-29	2 294	2 677	3 058	3 447	3 890	4 433	9 782
30-34	1 902	2 197	2 564	2 929	3 301	3 725	8 211
35-39	1 582	1 816	2 098	2 449	2 797	3 152	6 898
40-44	1 435	1 505	1 728	1 996	2 330	2 661	5 776
45-49	1 162	1 354	1 421	1 631	1 884	2 199	4 785
50-54	927	1 081	1 260	1 322	1 517	1 753	3 885
55-59	722	843	983	1 146	1 203	1 380	3 082
60-64	542	633	739	861	1 004	1 054	2 369
65-69	367	446	521	608	709	826	1 727
70-74	224	273	332	388	453	528	1 141
75-79	116	142	174	211	247	288	635
80-84	47	58	72	88	106	124	274
85 and over	16	19	23	28	35	42	96
TOTAL	30 980	35 395	40 439	46 157	52 624	59 957	131 550
Total, both sexes	62 676	71 573	81 733	93 259	106 297	121 088	265 655
Households ^a	10 000	11 378	13 036	14 871	16 933	19 265	42 296
Persons per household	6.27	6.29	6.27	6.27	6.28	6.29	6.28

^a Assumed to equal the number of women aged 20-44.

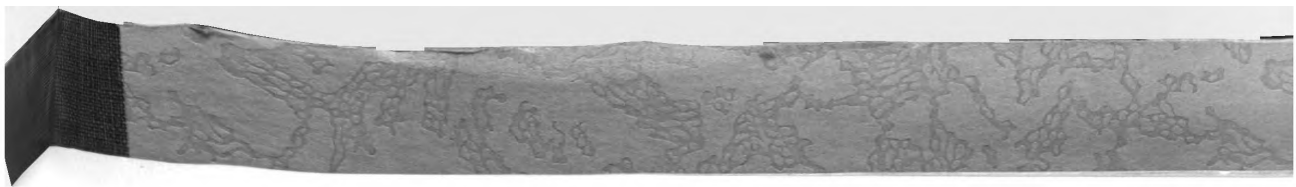


Table 58

PROJECTION OF SETTLEMENT POPULATION ACCUMULATING FROM CONTINUOUS RECRUITMENT
OF MIGRANTS SELECTED AS IN *Phase I* OF THE COMMUNITY-TRANSFER MODEL

<i>Sex and age</i>	<i>Time from beginning of migration (years)</i>						
	5	10	15	20	25	30	60
Males							
0-4	5 573	12 090	17 951	23 473	29 783	38 104	120 513
5-9	3 022	8 198	14 250	19 693	24 821	30 681	97 643
10-14	1 322	4 279	9 344	15 266	20 592	25 610	82 649
15-19	709	2 002	4 895	9 850	15 643	20 853	69 571
20-24	3 014	3 700	4 952	7 753	12 550	18 158	59 675
25-29	5 086	7 984	8 644	9 848	12 541	17 153	52 742
30-34	3 425	8 303	11 083	11 716	12 871	15 454	45 699
35-39	1 794	5 065	9 724	12 379	12 984	14 087	39 132
40-44	597	2 296	5 395	9 808	12 323	12 896	33 134
45-49	—	558	2 145	5 040	9 163	11 513	27 250
50-54	—	—	511	1 963	4 612	8 385	21 336
55-59	—	—	—	454	1 743	4 095	15 391
60-64	—	—	—	—	385	1 479	10 485
65-69	—	—	—	—	—	305	7 116
70-74	—	—	—	—	—	—	4 685
75-79	—	—	—	—	—	—	2 710
80-84	—	—	—	—	—	—	1 025
85 and over	—	—	—	—	—	—	176
TOTAL	24 542	54 475	88 894	127 243	170 011	218 773	690 932
Females							
0-4	5 429	11 777	17 486	22 865	29 011	37 116	117 394
5-9	2 948	7 997	13 901	19 210	24 212	29 928	95 250
10-14	1 288	4 169	9 103	14 873	20 061	24 949	80 524
15-19	690	1 948	4 761	9 579	15 213	20 279	67 654
20-24	4 684	5 351	6 568	9 288	13 947	19 396	59 726
25-29	2 961	7 460	8 101	9 270	11 883	16 358	50 897
30-34	1 659	4 495	8 804	9 418	10 538	13 040	42 344
35-39	695	2 279	4 987	9 102	9 688	10 758	35 021
40-44	—	661	2 168	4 744	8 659	9 216	28 907
45-49	—	—	624	2 046	4 477	8 172	23 643
50-54	—	—	—	581	1 904	4 166	18 403
55-59	—	—	—	—	529	1 733	13 105
60-64	—	—	—	—	—	463	8 754
65-69	—	—	—	—	—	—	5 895
70-74	—	—	—	—	—	—	2 362
75-79	—	—	—	—	—	—	3 952
80-84	—	—	—	—	—	—	652
85 and over	—	—	—	—	—	—	97
TOTAL	20 354	46 137	76 503	110 976	150 122	195 574	654 580
Total, both sexes	44 896	100 612	165 397	238 219	320 133	414 347	1 345 512
Households ^a	9 999	20 246	30 628	41 822	54 715	68 768	216 895
Persons per household	4.49	4.97	5.40	5.70	5.85	6.03	6.20

^a Assumed to equal the number of women aged 20-44.

Table 59

PROJECTION OF SETTLEMENT POPULATION ACCUMULATING FROM CONTINUOUS RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase II* OF THE COMMUNITY-TRANSFER MODEL

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 918	11 959	18 275	25 440	34 130	44 515	141 800
5-9	4 738	10 234	15 844	21 710	28 364	36 434	115 813
10-14	3 269	7 905	13 283	18 772	24 512	31 023	99 074
15-19	2 383	5 581	10 116	15 377	20 747	26 362	84 559
20-24	1 840	4 147	7 243	11 633	16 726	21 925	71 253
25-29	2 588	4 357	6 575	9 552	13 773	18 670	60 357
30-34	3 268	5 750	7 447	9 575	12 431	16 480	51 815
35-39	2 374	5 495	7 866	9 487	11 519	14 247	43 990
40-44	1 518	3 767	6 724	8 970	10 506	12 431	36 951
45-49	871	2 289	4 390	7 152	9 250	10 685	30 580
50-54	—	797	2 094	4 016	6 543	8 463	24 102
55-59	—	—	707	1 858	3 564	5 807	18 102
60-64	—	—	—	600	1 577	3 025	12 627
65-69	—	—	—	—	475	1 249	8 136
70-74	—	—	—	—	—	338	4 851
75-79	—	—	—	—	—	—	2 514
80-84	—	—	—	—	—	—	1 036
85 and over	—	—	—	—	—	—	264
TOTAL	28 767	62 281	100 564	144 142	194 117	251 654	807 824
Females							
0-4	5 764	11 648	17 801	24 780	33 245	43 361	138 126
5-9	4 621	9 982	15 454	21 176	27 666	35 538	112 969
10-14	3 185	7 701	12 940	18 288	23 880	30 223	96 522
15-19	2 317	5 427	9 836	14 951	20 173	25 633	82 220
20-24	1 787	4 028	7 036	11 300	16 247	21 297	69 210
25-29	3 265	4 982	7 135	10 024	14 120	18 872	59 324
30-34	2 322	5 449	7 093	9 155	11 922	15 845	50 079
35-39	1 592	3 810	6 796	8 366	10 335	12 977	41 788
40-44	1 034	2 548	4 658	7 499	8 993	10 866	34 716
45-49	612	1 588	3 017	5 009	7 691	9 101	28 655
50-54	—	569	1 477	2 807	4 660	7 155	22 786
55-59	—	—	518	1 344	2 554	4 240	17 360
60-64	—	—	—	454	1 178	2 238	12 316
65-69	—	—	—	—	374	970	8 084
70-74	—	—	—	—	—	278	4 939
75-79	—	—	—	—	—	—	2 629
80-84	—	—	—	—	—	—	1 119
85 and over	—	—	—	—	—	—	263
TOTAL	26 499	57 732	93 761	135 153	183 038	238 594	783 105
Total, both sexes	55 266	120 013	194 325	279 295	377 155	490 248	1 590 929
Households ^a	10 000	20 817	32 718	46 344	61 617	79 857	255 117
Persons per household	5.53	5.77	5.94	6.03	6.12	6.14	6.24

^a Assumed to equal the number of women aged 20-44.

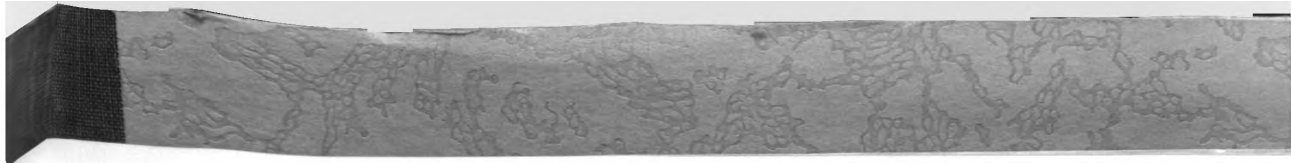


Table 60

PROJECTION OF SETTLEMENT POPULATION ACCUMULATING FROM CONTINUOUS RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase III* OF THE COMMUNITY-TRANSFER MODEL

Sex and age	Time from beginning of migration (years)						
	5	10	15	20	25	30	60
Males							
0-4	5 566	11 642	18 552	26 678	36 168	46 958	150 079
5-9	4 809	9 978	15 621	22 038	29 585	38 398	122 492
10-14	4 092	8 798	13 856	19 378	25 657	33 042	105 283
15-19	3 136	7 139	11 743	16 691	22 093	28 236	90 194
20-24	2 472	5 508	9 383	13 840	18 630	23 860	76 384
25-29	2 002	4 379	7 298	11 024	15 309	19 915	64 174
30-34	2 155	4 075	6 355	9 155	12 729	16 839	54 117
35-39	2 299	4 357	6 191	8 369	11 043	14 457	45 806
40-44	1 747	3 925	5 875	7 612	9 675	12 208	38 322
45-49	1 231	2 863	4 898	6 720	8 343	10 270	31 578
50-54	827	1 953	3 446	5 308	6 975	8 460	25 478
55-59	350	1 084	2 084	3 409	5 062	6 542	19 656
60-64	104	401	1 024	1 873	2 998	4 401	14 212
65-69	—	82	317	811	1 484	2 375	9 364
70-74	—	—	58	225	577	1 056	5 488
75-79	—	—	—	35	136	349	2 766
80-84	—	—	—	—	17	65	1 101
85 and over	—	—	—	—	—	5	323
TOTAL	30 790	66 184	106 701	153 166	206 481	267 436	856 817
Females							
0-4	5 421	11 340	18 071	25 987	35 232	45 742	146 195
5-9	4 691	9 733	15 238	21 498	28 860	37 458	119 489
10-14	3 986	8 571	13 499	18 879	24 997	32 192	102 574
15-19	3 050	6 942	11 419	16 231	21 484	27 458	87 705
20-24	2 401	5 351	9 115	13 445	18 099	23 179	74 198
25-29	1 942	4 248	7 082	10 698	14 857	19 328	62 277
30-34	2 430	4 290	6 498	9 212	12 675	16 658	52 776
35-39	1 846	4 167	5 943	8 052	10 644	13 951	44 324
40-44	1 381	3 137	5 345	7 035	9 041	11 507	36 915
45-49	1 012	2 316	3 973	6 057	7 652	9 545	30 497
50-54	719	1 661	2 874	4 416	6 355	7 839	24 853
55-59	359	1 013	1 870	2 974	4 377	6 141	19 577
60-64	110	425	998	1 749	2 716	3 945	14 540
65-69	—	91	350	822	1 440	2 236	9 882
70-74	—	—	68	261	612	1 072	6 006
75-79	—	—	—	43	166	389	3 145
80-84	—	—	—	—	22	84	1 309
85 and over	—	—	—	—	—	7	409
TOTAL	29 348	63 285	102 343	147 359	199 229	258 731	836 671
Total, both sexes	60 138	129 469	209 044	300 525	405 710	526 167	1 693 488
Households ^a	10 000	21 193	33 983	48 442	65 316	84 623	270 490
Persons per household	6.01	6.11	6.15	6.20	6.21	6.22	6.26

^a Assumed to equal the number of women aged 20-44.

Table 61

PROJECTION OF SETTLEMENT POPULATION ACCUMULATING FROM CONTINUOUS RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase IV* OF THE COMMUNITY-TRANSFER MODEL

<i>Sex and age</i>	<i>Time from beginning of migration (years)</i>						
	5	10	15	20	25	30	60
Males							
0-4	5 466	11 716	18 952	27 301	36 798	47 525	151 908
5-9	4 569	9 645	15 449	22 169	29 923	38 743	123 790
10-14	4 046	8 517	13 484	19 163	25 739	33 326	106 364
15-19	3 453	7 411	11 785	16 644	22 200	28 633	91 340
20-24	2 769	6 112	9 944	14 178	18 882	24 261	77 500
25-29	2 254	4 916	8 130	11 814	15 885	20 408	65 274
30-34	1 862	4 024	6 577	9 660	13 194	17 099	54 821
35-39	1 762	3 540	5 605	8 043	10 988	14 363	45 988
40-44	1 674	3 343	5 027	6 983	9 293	12 083	38 418
45-49	1 304	2 868	4 427	6 000	7 827	9 985	31 594
50-54	964	2 157	3 588	5 014	6 453	8 125	25 429
55-59	687	1 543	2 602	3 872	5 138	6 415	19 853
60-64	400	983	1 710	2 609	3 687	4 762	14 725
65-69	222	539	1 001	1 577	2 289	3 143	10 086
70-74	104	262	488	817	1 227	1 734	6 121
75-79	37	100	196	333	532	780	3 130
80-84	8	26	56	102	167	262	1 257
85 and over	—	2	8	18	34	56	378
TOTAL	31 581	67 704	109 029	156 297	210 256	271 703	867 976
Females							
0-4	5 324	11 412	18 461	26 594	35 845	46 295	147 976
5-9	4 457	9 408	15 070	21 626	29 190	37 793	120 756
10-14	3 941	8 297	13 136	18 669	25 076	32 468	103 628
15-19	3 358	7 206	11 459	16 184	21 586	27 842	88 820
20-24	2 690	5 938	9 659	13 772	18 342	23 566	75 284
25-29	2 188	4 772	7 892	11 466	15 417	19 807	63 351
30-34	1 804	3 899	6 374	9 362	12 785	16 569	53 122
35-39	1 853	3 576	5 577	7 941	10 795	14 064	44 707
40-44	1 466	3 229	4 868	6 772	9 021	11 736	37 360
45-49	1 147	2 531	4 195	5 742	7 539	9 662	30 905
50-54	881	1 948	3 236	4 784	6 223	7 895	25 194
55-59	660	1 462	2 433	3 605	5 013	6 322	20 094
60-64	423	1 001	1 704	2 555	3 582	4 816	15 356
65-69	244	592	1 068	1 647	2 347	3 192	10 901
70-74	120	302	561	915	1 346	1 867	6 900
75-79	44	120	236	401	626	900	3 691
80-84	10	32	70	128	211	324	1 560
85 and over	—	3	10	23	44	75	510
TOTAL	30 610	65 728	106 009	152 186	204 988	265 193	850 115
Total, both sexes	62 191	133 432	215 038	308 483	415 244	536 896	1 718 091
Households^a	10 001	21 414	34 370	49 313	66 360	85 742	273 824
Persons per household	6.22	6.23	6.26	6.26	6.26	6.26	6.27

^a Assumed to equal the number of women aged 20-44.

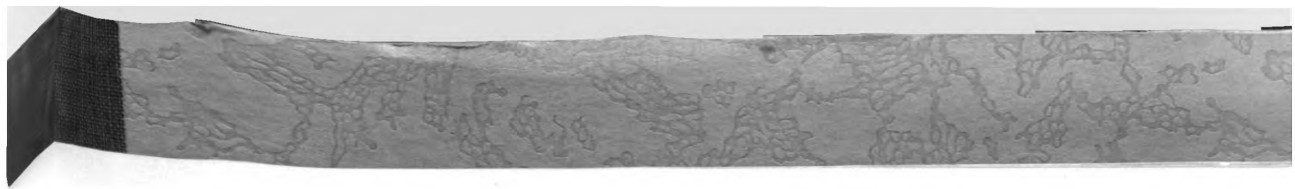


Table 62

PROJECTION OF SETTLEMENT POPULATION ACCUMULATING FROM CONTINUOUS RECRUITMENT OF MIGRANTS SELECTED AS IN *Phase V* OF THE COMMUNITY-TRANSFER MODEL

<i>Sex and age</i>	<i>Time from beginning of migration (years)</i>						
	5	10	15	20	25	30	60
Males							
0-4	5 520	11 852	19 107	27 375	36 765	47 442	151 558
5-9	4 499	9 625	15 506	22 244	29 922	38 642	123 455
10-14	3 901	8 303	13 319	19 074	25 667	33 180	105 986
15-19	3 385	7 201	11 507	16 414	22 044	28 494	90 990
20-24	2 869	6 146	9 840	14 009	18 759	24 209	77 294
25-29	2 364	5 123	8 274	11 826	15 834	20 401	65 171
30-34	1 963	4 231	6 877	9 899	13 306	17 150	54 808
35-39	1 633	3 508	5 674	8 201	11 087	14 341	45 883
40-44	1 425	2 972	4 748	6 800	9 194	11 928	38 148
45-49	1 237	2 568	4 013	5 672	7 589	9 825	31 326
50-54	971	2 103	3 321	4 643	6 161	7 915	25 181
55-59	731	1 593	2 598	3 679	4 853	6 201	19 635
60-64	525	1 145	1 877	2 730	3 648	4 644	14 637
65-69	334	750	1 241	1 821	2 497	3 224	10 157
70-74	195	433	729	1 078	1 491	1 972	6 303
75-79	96	214	358	537	748	998	3 310
80-84	37	83	139	208	293	393	1 362
85 and over	11	24	40	60	85	115	427
TOTAL	31 696	67 874	109 168	156 270	209 943	271 074	865 631
Females							
0-4	5 377	11 545	18 612	26 665	35 812	46 213	147 636
5-9	4 389	9 390	15 126	21 698	29 187	37 694	120 431
10-14	3 800	8 089	12 976	18 582	25 005	32 324	103 261
15-19	3 291	7 001	11 189	15 961	21 435	27 706	88 478
20-24	2 787	5 970	9 558	13 608	18 223	23 517	75 082
25-29	2 294	4 971	8 029	11 476	15 366	19 799	63 247
30-34	1 902	4 099	6 663	9 592	12 893	16 618	53 105
35-39	1 582	3 398	5 496	7 945	10 742	13 894	44 455
40-44	1 435	2 940	4 668	6 664	8 994	11 655	37 163
45-49	1 162	2 516	3 937	5 568	7 452	9 651	30 789
50-54	927	2 008	3 268	4 590	6 107	7 860	25 121
55-59	722	1 565	2 548	3 694	4 897	6 277	20 041
60-64	542	1 175	1 914	2 775	3 779	4 833	15 400
65-69	367	813	1 334	1 942	2 651	3 477	11 090
70-74	224	497	829	1 217	1 670	2 198	7 194
75-79	116	258	432	643	890	1 178	3 965
80-84	47	105	177	265	371	495	1 724
85 and over	16	35	58	86	121	163	598
TOTAL	30 980	66 375	106 814	152 971	205 595	265 552	848 780
Total, both sexes	62 676	134 249	215 982	309 241	415 538	536 626	1 714 411
Households ^a	10 000	21 378	34 414	49 285	66 218	85 483	273 052
Persons per household	6.27	6.28	6.28	6.27	6.28	6.28	6.28

^a Assumed to equal the number of women aged 20-44.

Section VII

EFFECTS OF INTERNAL MIGRATION OF POPULATION DISTRIBUTION AND GROWTH

As a possible basis for discussion, a speculative example has been worked out in which the migration model developed in the foregoing section was applied. It will be shown, in a rough approximation, how population growth in the two islands of Java and Sumatra may be affected if there is a continuing transfer of settlers from one island to the other.

It must be admitted that the present example is unrealistic in several respects. Population movements from Java to Sumatra have occurred at various times in the past, without ever quite attaining the volume contemplated here. On a minor scale, migrants have also moved to and from Sumatra, Kalimantan (Indonesian part of Borneo), and other areas, including British Borneo, Malaya and even Surinam. Indonesia also had a European population now reduced as a result of repatriation. In Java, Sumatra and other Indonesian islands, furthermore, there has been a considerable immigration of Chinese at various times. There are no precise records of movements between 1940 and 1950. It is suggested in some sources that several hundred thousand labourers were deported by the Japanese military authorities from Java to other areas, few of whom have returned subsequently.

The calculations carried out here assume no migration prior to 1950, but varying amounts of migration from that year onward. Several years, however, have elapsed since that date, during which spontaneous inter-island movements of unrecorded volume have occurred in addition to those assisted movements for which statistics are available.¹ At the same time there may have been an immigration into Java and particularly its growing city of Djakarta.

Even if other movements are disregarded, the observations available here do not suffice for an assessment of the structure of the migration which actually characterizes the movements between Java and Sumatra. Already at the census of 1930, more than a million persons of Javanese ancestry were enumerated as residing in Sumatra. Substantial transfers of government-assisted settlers occurred during the 1930s, and also in recent years. Parallel with these, there has also been a stream of spontaneous migrants joining settlements

in Sumatra which had been established for some time. The two streams, one assisted and the other spontaneous, may have been very differently composed by sex and age. Movements to areas other than Sumatra may have a yet different composition since settlement, in many instances, must first be preceded by preparatory labour, including the clearance of jungle.

Finally, even the available statistics on the size and growth of the total Indonesian population, taken as a whole, are still subject to wide interpretations as to their accuracy. With the present state of statistical information, therefore, it would be futile to aim at more exact calculations in matters of detail.

The case of Java and Sumatra has nevertheless been selected as an example of the application of methods for calculating the effects of migration. In the first place, the population affected by problems of unequal geographical distribution is, in this case, unusually large. Secondly, the fact that two separate islands are affected brings this matter into sharper focus. The type of reasoning involved is, nevertheless, equally applicable to other areas in South-East Asia where, as has been noted, internal contrasts in the density of settlement are greater than the local differences in available natural resources alone would seem to warrant.

The future population of Java and Sumatra, according to conservative assumptions

The conservative population projection for Indonesia (see Section I and tables in Appendix II) has been carried out in two parts, one for Java (including the small island of Madura), the other for the remaining islands. In both instances, the same trends of fertility and mortality have been assumed for the 1950-1980 period, but the projections differ in that different age structures had to be estimated for 1950, the base date.² The

¹ Irregular population trends had to be estimated for the disturbed years of the 1940-1950 period. For Java and the other islands alike, it was assumed that mortality was then far greater than if more normal conditions had prevailed. In addition, it was also assumed that birth rates were lower than in normal times, and relative birth deficits were estimated separately for Java and for the other islands, to arrive at population totals which agree with available estimates for both the pre-war and the post-war years. In this context, a much sharper birth deficit had to be estimated for Java than for the other islands. The age structures estimated for 1950 differ accordingly. The assumptions imply the following average crude birth and death rates in 1940-1945 and 1945-1950:

	Birth rates		Death rates		Infant mortality	
	1940-1945	1945-1950	1940-1945	1945-1950	1940-1945	1945-1950
Java . . .	40.3	35.2	32.2	35.7	244.7	300.0
Sumatra .	42.1	42.0	29.8	29.7	228.9	228.9

² Families whose transfer from Java to other islands has been assisted by the Transmigration Department and other agencies numbered 3,164 in 1950, 2,322 in 1951, 8,909 in 1952, 12,190 in 1953 and 24,705 in 1954. Assisted migration continued until March 1957 when it was temporarily halted. The following numbers of individual migrants have been assisted in various years:

1937	19,354	1950	9,977
1938	33,399	1951	8,648
1939	44,694	1952	35,311
1940	52,208	1953	48,354

projection for Java, as in the original calculation, and that for Sumatra, as derived from the original projection for the remaining parts of Indonesia, are presented in summary form in Table 63.³

Assuming equal future trends in mortality and fertility, and no migration, the populations of the two

islands are likely to grow as follows: Beginning with 50 million in 1950, Java may attain 92 million by 1980; in the same period, the population of Sumatra may rise from 12 to 22 million. If these trends are to materialize—and there may be reasons to doubt this possibility in the case of Java—the economic implications are serious. The land area of Java is 132,174 square kilometres, and that of Sumatra is 473,606. According to the estimates, population density to the square kilometre in 1950 was 378 in Java and 25 in Sumatra; in 1980, these densities will become 698 and 47 respectively. Few, if any, areas in the world the size of Java contain as much population as Java now has already. Average population density in Sumatra will be quite moderate even thirty years hence.

³ Official estimates agree very nearly with 50 million inhabitants for Java, and 25 million for the other islands in mid-year 1950, and these rounded figures were used in the projection. Here, the mid-year 1950 population of Sumatra is taken at the rounded figure of 12 million though this exceeds somewhat the figure for that date according to official estimates; it is known, however, that there have recently been some obstacles in parts of Sumatra, particularly the north, to an accurate assessment of the current local population.

Table 63

JAVA AND SUMATRA. CONSERVATIVE PROJECTION OF THE POPULATIONS, ASSUMING NO MIGRATION (NUMBERS IN THOUSANDS)

Both sexes	Java						
	1950	1955	1960	1965	1970	1975	1980
0-14	17 899	20 059	23 466	27 868	30 109	32 565	36 353
15-29	14 753	15 844	16 130	15 788	17 845	21 202	25 496
30-44	9 456	10 365	11 412	12 585	13 750	14 209	14 103
45-59	5 373	5 925	6 599	7 398	8 325	9 380	10 556
60-74	2 199	2 446	2 759	3 146	3 618	4 181	4 846
75 and over . .	320	371	435	516	620	747	907
TOTAL	50 000	55 010	60 801	67 301	74 267	82 284	92 261

Both sexes	Sumatra						
	1950	1955	1960	1965	1970	1975	1980
0-14	4 665	5 094	5 689	6 388	7 113	7 954	8 993
15-29	3 322	3 585	3 822	4 109	4 543	5 144	5 843
30-44	2 158	2 351	2 577	2 833	3 110	3 367	3 672
45-59	1 252	1 371	1 516	1 688	1 889	2 118	2 377
60-74	523	577	646	732	836	960	1 104
75 and over . .	80	90	105	123	145	174	211
TOTAL	12 000	13 068	14 355	15 873	17 636	19 717	22 200

There are, of course, variations of population density among the sub-regions of each island, and natural resources per unit of land are not nearly equal in the two cases. Thus Java, with its volcanic soils, favours a more intensive cultivation of the land than may be attainable in most of the greatly varied terrains of Sumatra. In Sumatra, on the other hand, there is a certain abundance of mineral resources, notably oil and metal ores. Nevertheless, it seems quite improbable that differences in the natural endowment of the two islands are so great as to justify, by themselves, a ratio of fifteen to one in their respective population densities, either in 1950 or in 1980.

Factors other than natural resources must be held largely accountable for this contrast. This becomes most obvious if we consider another extreme case, that of Kalimantan (the Indonesian part of Borneo). Here, in an area of 539,460 square kilometres, a population

of only 3,586,000 has been estimated for 1952,⁴ and even this figure represents a large increase over earlier estimates. The average density is one of only 6.6 persons to the square kilometre; on the basis of natural increase alone, an average density of about 13 might, perhaps, be attained by 1980. The natural resources of Kalimantan have not yet been fully explored. Most of the area is covered by dense forests which would require large expenditures of human labour before a great intensification in the use of resources could be envisaged. Probably, in pre-historic times the natural vegetation in Java and Sumatra was almost equally forbidding. In Kalimantan, however, an organized civilization capable of transforming jungles into permanent rice fields has not appeared in historic times. Some

⁴ "The Population of Indonesia", *Ekonomi dan Kenangan Indonesia*, February 1956.

initial development, difficult to achieve, evidently is a pre-requisite before more intensive development can follow.

This pristine condition has already been overcome in large sections of Sumatra, where several clusters of fairly dense settlement can now be found. These clusters, however, are still separated by great distances, and internal transportation encounters severe obstacles. Under the conditions, the cost of social overheads, including such diverse items as improved means of transportation, the extension of education, the acquisition of skills, and the organization of markets for labour and commodities, is very high. The prospects for rapid economic development, without doubt, will be greatly improved by a rapid growth of the population. Since a beginning in the more intensive use of resources has already been made, the stage has probably been reached where a considerable further growth of population can be accommodated.

Views on the demographic situation of Java may differ much more widely. Some students of Java's unparalleled situation have expressed a fear that, here, a population pressing on limited natural resources can be effectively prevented from increasing any further by a recurrence of catastrophic events. Such an attitude implies the belief that the present methods of resource utilization are rigidly determined and cannot be modified. It makes no allowance for human ingenuity in coping with a difficult situation. But, even if the view were tenable, it would have little relevance to any constructive efforts that are made in matters of economic and social development.⁵

This view is rejected by all those who believe that improvements in technique and organization at all times provide room for some added numbers of the population. Yet there are wide differences in the rate at which it is estimated that improvements can become effective. The expected rate of technical and organizational progress may or may not match the rate of population growth which can be reasonably projected on the basis of current observations. Even if sufficient progress is made within the near future, difficulties may increase with time until a point is reached where continued population growth neutralizes all the improvements realized so far. Population growth itself, furthermore, may limit the rate at which resource-use can be intensified, since shelter and clothing must also be provided for continuously increasing numbers.

It is known that Java's cultivated area can hardly be extended any further without a dangerous depletion of the remaining forest cover, and consequent erosion. Nor is there much scope for any further expansion of irrigation. Considerable land areas are cropped twice, and some even three times a year; in addition a catch of fish is made in rice fields seasonally flooded. With the yields now obtained, local food production needs to

⁵ It is an ironical commentary on present conditions that this extreme viewpoint has already been expressed a long time ago, when Java's population was much smaller than it is now. So long as 150 years ago, Governor Raffles voiced serious concern over Java's apparent population pressure though, in 1805, the population was assessed at only 4.5 million.

be supplemented by imported foods. The tendency has also been noted to substitute cassava for the cultivation of rice; a bulkier food product is then obtained, but its nutritive value is low. If, with a rise in population, more food has to be imported, the means of payment will depend on increased exports of raw materials and manufactured goods; but with the low level of incomes, very little capital can be generated, and with the lack of capital it is very difficult to increase the value of exported goods. From a strictly technical standpoint, an increase in average yields may seem feasible; in practice, such further achievement is largely impeded by the lack of needed capital, the limited ability to produce needed savings, and the persistence of traditional working methods.

The situation in some respects resembles that of Japan at the turn of this century where, at the time, a population of about 35 million inhabitants appeared excessive for a predominantly agrarian island country with limited natural resources. And yet, since then, Japan has been converted into an industrialized country supporting at the present time 90 million inhabitants at a higher level of living than some fifty years ago. But historical and social circumstances are not the same in the two cases. In Indonesia, facilities for the training of indigenous administrators and technicians have been exceedingly limited in the past, and there continues to be a severe shortage of qualified personnel capable of dealing with an organizational task of the given magnitude, as well as of a labour force with intermediate levels of skill and experience. To enter the competition for foreign markets has become more difficult than before as a result of accumulated technical progress and organization on the part of the more seasoned competitors. As a matter of fact, the output of formerly exported products such as sugar, tea, coffee, cocoa and tobacco has been sharply curtailed in Java. While views on economic prospects may differ, it is generally agreed that Java's situation is a difficult one.

Possible alternative population trends in Java in the absence of migration

The populations of Java and Sumatra have been projected on the conservative assumptions of normal mortality decline, constant fertility and no migration. Except for migration, this set of assumptions seems reasonable for Sumatra, an area with abundant natural resources but difficult internal communication. In the case of Java, alternative considerations are of greater interest.

The extremely pessimistic view which foresees no possibility of further increase once Java's population has attained a supposedly fixed limit provides no guideline for practical planning, and is therefore dismissed here.

At the other extreme, on the basis of a low-mortality assumption (of the kind presented in Section II), a population as high as 106.4 million can be projected for Java in 1980. This figure is staggering, since the average density of population would then amount to 805 persons per square kilometre of land, mountains and marshlands included. On the conservative assumption, where a more moderate decline of mortality is

projected, the 1980 population would be 92.3 million, and population density would be 698 per square kilometre. On the very pessimistic assumption of no mortality decline, mortality remaining constant at the level estimated for the pre-1940 period, Java's population in 1980 would attain 76.5 million, with 578 persons per square kilometre.

On all the above assumptions, fertility is assumed to remain constant. The rate of mortality decline will depend on the speed with which modern sanitary services can be expanded; but also, under adverse conditions, on some economic difficulties that might be encountered in ensuring the livelihood of this dense population. If the possibility of future fertility declines are taken into account, other results are obtained, as shown in Table 64, below. The fertility declines are assumed to begin in 1960 and to proceed by 1 per cent annually of the initial level if they are moderate, or by 2 per cent annually if they are rapid. The lowest of all population figures

obtained for 1980, 68.5 million, results from the very unlikely combination of no decline in mortality and a very sharp decline in fertility; even then, average population density will be 519 to the square kilometre, as against the 378 estimated for 1950.

While there is nothing impossible in an eventually very large and very dense population in Java, doubts may be entertained whether, in view of its present high density, additional resources can be developed rapidly enough to provide for population growth such as can reasonably be anticipated by 1980. It will have to be noted that a population smaller than 80 million can hardly result unless there is a severe retardation in the decline of mortality, a sharp decline of fertility, or a combination of the two. As compared with the 50 million estimated for 1950, the 80 million represent an increase of 60 per cent. On the other hand, the 1980 population may become even more than twice that in 1950.

Table 64

POPULATION AND POPULATION DENSITY OF JAVA IN 1980, RESULTING FROM VARIOUS COMBINATIONS OF ASSUMPTIONS OF FUTURE FERTILITY AND MORTALITY TRENDS

Fertility trend	Population (millions)			Inhabitants per square kilometre		
	Very rapid mortality decline	Normal mortality decline	Mortality constant at pre-1940 level	Very rapid mortality decline	Normal mortality decline	Mortality constant at pre-1940 level
Constant level	106.4	92.3 ^a	76.5	805	698 ^a	578
Moderate decline	100.4	87.3	72.5	759	660	549
Rapid decline	94.4	82.3	68.5	714	623	519

^a Conservative assumption.

These alternative assumptions are listed only for purposes of clarification. Other combinations of assumptions can also be imagined, some appearing more likely than others, depending on whether the future is being viewed with optimism or more guardedly. The results listed here, however, may suffice for purposes of discussion.

In the following paragraphs consideration is given to the manner in which migration might affect population growth in either Java or Sumatra.

The type of migratory movement

In Section VI, where models for the calculation of migratory effects were developed, a distinction was made between the effects of one-time migration, such as the movement which results in the foundation of one particular settlement, and continuing migration affecting an entire region within which numerous settlements are formed in the course of time. Both types of effect merit close study.

In a society of close-knit villages, depending largely on a subsistence economy, the demographic development of those villages whence the migrants originate and of those founded by them, is of prime importance. The economic success of the settlements will depend in large

measure on the inherent social structure and on the degree of social stability and cohesion which it confers.

On the other hand, it is to be expected that, in the process of settlement, the population will undergo considerable changes in its economy and social outlook, with a consequent widening of horizons. The penetration of a cash economy increases contacts among settlements, as well as contacts between settlers and the remainder of the regional population. The spread of education and literacy diminishes the barriers of kinship groups and enables individuals to form associations within wider circles of the society, thereby increasing their occupational and social as well as geographic mobility. With modern community development techniques, this process can be stimulated and intensified.

In the course of time, therefore, the population of settlers increasingly forms part of the general regional population. The demographic development of the entire region then becomes more and more relevant. In the early phases of settlement, this is less likely to be the case.

Detailed statistics on the composition of migratory streams originating from Java have not become available, but statistics have been secured relating to land settlement schemes in Ceylon and in the Philippines. Thus, in the Gal Oya region of Ceylon, an age distribution

of recent settlers⁶ showed that, of 27,817 persons, 3,594, i.e., 12.9 per cent of the total, were aged 40 years and over. In three recent settlement projects of the Philippines,⁷ the percentage of persons aged 40 and over was 13.5, 12.8 and 19.5 respectively. Evidently, some but not many adult persons past their middle age participate in these schemes, though the majority are young couples with their children, most of them small.

The statistics examined conform most nearly to phase III of the migratory model developed in Section VI. Whether migrants from Java settling in Sumatra are similarly composed is not known, though conceivably they might be. It will be assumed that phase III of the model most nearly applies to the case under study.

It will be noted that, in the original community-transfer model (see Tables 47 and 48, Section VI), phase III occurs when about one-half of the population of a community is involved in the movement. This point is of some interest, though a very loose interpretation may have to be given to the concept of the communities from which the migrants originate.

It is, of course, desirable that migrants be recruited from among groups of families, whether living in the same village or not, who for reasons of kinship or economic co-operation maintain relations of mutual interest. Without some initial community of interest, social cohesion among the settlers may be difficult to achieve. Since in phase III about one-half of a community, however conceived, is transferred, about twice as many persons are directly affected by a movement of this type as the number of migrants themselves. It can, therefore, be assumed that immediate relief from population pressure is afforded to population groups in the area of origin, which are about as large as the groups of settlers. This measure of relief, other things being equal, can last until the population has doubled again as a result of natural increase, i.e., perhaps for a period of thirty years, under the given assumptions.

As can be seen from Table 55 (Section VI), stability of the settlement is not immediately attained, but the deformation of its age structure, about fifteen years later, is not very marked. Under the conditions, severe social stress can probably be averted with success.

Whether recruitment of migrants according to criteria approximating those of phase III is most desirable depends on a balanced consideration of economic and social factors. In the region of settlement, success will best be ensured if the initial economic burdens on households are not too heavy while the elements which strengthen social cohesion are yet sufficiently represented. In the region of out-movement, varying criteria of recruitment provide varying measures of economic relief, though also some social hardship, for more or less prolonged periods of time. Relief should be created especially in those areas where the consequent release

of local resources can make the greatest contribution to local and regional economic development.

The volume of the migratory movement

The amount of population growth in Java can be curtailed, and that in Sumatra augmented, by amounts which depend on the numbers of migrants transferred each year. Assuming a constant rate of annual transfers, the net effects can be calculated directly by the multiplication of figures in Table 60 (Section VI) by any desired constant. As shown in that table, the successful transfer of 10,000 households in every five-year period gives rise to a settlement population which numbers, at the end of 30 years, some 526,000 persons. It can be assumed that an annual transfer of 2,000 families results in 10,000 households being established in 5 years. Depending on the annual volume of transfers which can be achieved, population growth in Java will be diminished as follows, at the end of 30 years: by 2.6 million, with an annual transfer of 10,000 families; by 5.3 million, with an annual transfer of 20,000 families; by 13.2 million, with an annual transfer of 50,000 families; and by 42.1 million, with an annual transfer of 160,000 families. In the latter event, population growth in Java, resulting from conservatively projected natural increase, would be completely neutralized, and Java's population would be maintained very near a constant level.

Population growth in Sumatra would then be speeded up by the same amounts. With no migration, Sumatra's population has been conservatively projected from a figure of 12 million in 1950 to one of 22.2 million in 1980, an increase of 85 per cent in 30 years, or of 2.1 per cent on an annual average. For Java's population to be stabilized, Sumatra would have to receive, within 30 years, an additional population of 42.1 million, the total population then amounting to 64.3 million. Though a population of this size is not inconceivable for Sumatra (the average density would then be 136 persons to the square kilometre, i.e., still only one-third the present density in Java), it is rather difficult to imagine that such a large and sustained growth could be absorbed within such a short time; the average annual rate of population growth, on this extreme assumption, would be 5.8 per cent, and it is doubtful whether economic expansion can be maintained at a comparable tempo.

No assumption is made here as to the most desirable, or practically feasible, rate of migration. Sizeable investments are required to implement any substantial programme of transmigration.⁸ And there are limits to the possible rates of economic development and to the rapidity with which a society can adjust, without severe stress, to a set of changing conditions.

For illustrative purposes only, it is assumed that an annual movement of 20,000 households from Java to Sumatra can be carried out. This volume exceeds past achievements since, according to statistics, only 40,932

⁶ Data communicated by the Gal Oya Development Board through the Ceylon Department of Census and Statistics.

⁷ Settlements of Tinambac, Maramag, and Tawi-Tawi, according to data obtained from the Philippines National Resettlement and Rehabilitation Administration.

⁸ In 1957, the cost per family was estimated at 5,000 rupiahs (i.e., about U. S. \$440), *An Outline of the Transmigration Department in Indonesia* (Republic of Indonesia, Ministry of Social Affairs, 1957), p. 23.

families were moved from Java in the five-year period 1950-1954, some of them to Sumatra and some to other islands.⁹ But as there are no statistics on unassisted migrants, it is possible that the total number of movements was considerably greater. The annual movement of 20,000 families, assumed here, while large in the light

of past achievement, is not inconceivable. If movements on this scale continue from 1950 to 1980, the populations of Java and Sumatra will develop as in Tables 65 and 66.¹⁰

⁹ "The Population of Indonesia", *Ekonomi dan Keuangan Indonesia*, February 1956.

¹⁰ If movements are assumed on a different scale, some other multiple of the calculated migratory effect is to be subtracted from the projection for Java, and added to the projection for Sumatra. Combinations of different assumptions are shown, for Java, in Table 67.

Table 65

POPULATION OF JAVA, ACCORDING TO CONSERVATIVE PROJECTION, 1950-1980, ASSUMING NO MIGRATION AND AN ANNUAL EMIGRATION OF 20 000 HOUSEHOLDS (POPULATION IN THOUSANDS)

Both sexes	1950	1955	1960	1965	1970	1975	1980
1. Assuming no migration							
0-14	17 899	20 059	23 466	27 868	30 109	32 565	36 353
15-29	14 753	15 844	16 130	15 788	17 845	21 202	25 496
30-44	9 456	10 365	11 412	12 585	13 750	14 209	14 103
45-59	5 373	5 925	6 599	7 398	8 325	9 380	10 556
60-74	2 199	2 446	2 759	4 136	3 618	4 181	4 846
75 and over . .	320	371	435	516	620	747	907
TOTAL	50 000	55 010	60 801	67 301	74 267	82 284	92 261
2. Migrants and their offspring							
0-14	—	286	600	949	1 345	1 806	2 338
15-19	—	149	335	560	818	1 105	1 420
30-44	—	118	240	362	495	657	857
45-59	—	45	110	192	289	389	487
60-74	—	2	10	28	57	98	151
75 and over . .	—	0	0	0	0	3	9
TOTAL	—	600	1 295	2 091	3 004	4 058	5 262
3. With emigration							
0-14	17 899	19 773	22 866	26 919	28 764	30 759	34 015
15-29	14 753	15 965	15 795	15 228	17 027	20 097	24 076
30-44	9 456	10 247	11 172	12 223	13 255	13 552	13 246
45-59	5 373	5 880	6 489	7 206	8 036	8 991	10 069
60-74	2 199	2 444	2 749	3 118	3 561	4 083	4 695
75 and over . .	320	371	435	516	620	744	898
TOTAL	50 000	54 410	59 506	65 210	71 263	78 226	86 999

The direct effect on Java's population is relatively slight. Instead of 92 million, there will be 87 million inhabitants in 1980, barely 6 per cent less. Java's population increase in thirty years will be 37 million instead of 42 million, or about one-eighth less; the remaining seven-eighths of Java's population increase will continue to have to be absorbed in its growing local economy.

The direct effect of this movement on Sumatra will be much more appreciable. The absolute increase, in thirty years, will be by 15.5 million instead of the 10.2 million resulting from the natural increase of the 1950 population. As, on the average of this long period, the rate of population growth is augmented by one-half,

the stimulating effects on local economic development are bound to be keenly felt.

Indirect effects of the movements on the national economy of Indonesia, as well as in local areas, are likely to be far greater.

The question of the optimum rate of migration

In the process of population transfer from crowded areas to lands of opportunity, new circuits are brought into being in the economy. In the areas of out-movement, resources are released which previously provided for the subsistence of a larger population. In the areas

Table 66

POPULATION OF SUMATRA, ACCORDING TO CONSERVATIVE PROJECTION, 1950-1980, ASSUMING NO MIGRATION AND AN ANNUAL IMMIGRATION OF 20 000 HOUSEHOLDS (POPULATION IN THOUSANDS)

Both sexes	1950	1955	1960	1965	1970	1975	1980
1. Assuming no migration							
0-14	4 665	5 094	5 689	6 388	7 113	7 954	8 993
15-29	3 322	3 585	3 822	4 109	4 543	5 144	5 843
30-44	2 158	2 351	2 577	2 833	3 110	3 367	3 672
45-59	1 252	1 371	1 516	1 688	1 889	2 118	2 377
60-74	523	577	646	732	836	960	1 104
75 and over . .	80	90	105	123	145	174	211
TOTAL	12 000	13 068	14 355	15 873	17 636	19 717	22 200
2. Migrants and their offspring							
0-14	—	286	600	949	1 345	1 806	2 338
15-29	—	149	335	560	818	1 105	1 420
30-44	—	118	240	362	495	657	857
45-59	—	45	110	192	289	389	487
60-74	—	2	10	28	57	98	151
75 and over . .	—	0	0	0	0	3	9
TOTAL	—	600	1 295	2 091	3 004	4 058	5 262
3. With immigration							
0-14	4 665	5 380	6 289	7 337	8 458	9 760	11 331
15-29	3 322	3 734	4 157	4 669	5 361	6 249	7 263
30-44	2 158	2 469	2 817	3 195	3 605	4 024	4 529
45-59	1 252	1 416	1 626	1 880	2 178	2 507	2 864
60-74	523	579	656	760	893	1 058	1 255
75 and over . .	80	90	105	123	145	177	220
TOTAL	12 000	13 668	15 650	17 964	20 640	23 775	27 462

Table 67

POPULATION OF JAVA IN 1980, AND POPULATION INCREASE, 1950-1980, RESULTING FROM VARIOUS COMBINATIONS OF ASSUMPTIONS OF FUTURE FERTILITY, MORTALITY AND MIGRATION TRENDS

Fertility trend	(Population millions)			Population in 1980 per 100 of population in 1950		
	Very rapid mortality decline	Normal mortality decline	Mortality constant at pre-1940 level	Very rapid mortality decline	Normal mortality decline	Mortality constant at pre-1940 level
1. Assuming no migration						
Constant level	106.4	92.3 ^a	76.5	213	185 ^a	153
Moderate decline	100.4	87.3	72.5	201	175	145
Rapid decline	94.4	82.3	68.5	189	165	137
2. Assuming annual emigration of 20 000 households						
Constant level	101.1	87.0 ^a	71.2	202	174 ^a	142
Moderate decline	95.1	82.0	67.2	190	164	134
Rapid decline	89.1	77.0	63.2	178	154	126
3. Assuming annual emigration of 50 000 households						
Constant level	93.2	79.1 ^a	63.3	186	158 ^a	127
Moderate decline	87.2	74.1	59.3	174	148	119
Rapid decline	81.2	69.1	55.3	162	138	111

^a Conservative assumption.

of settlement, new resources, previously unexploited, are brought into use. In both areas, ratios between population and resources can be brought nearer an optimum,¹¹ with consequent economic benefits. The economy is also activated by the increase in the volume of cash transactions. A study of the economic opportunities thus opened out is outside the field of this report. It is nevertheless evident that multiplying effects are generated in the process, and the number of people whose level of living is raised above mere subsistence is likely to be some multiple of the number of persons directly involved in the transfer of settlement.

With such beneficial effects on the economy, population pressure in the densely settled region is effectively reduced, while the possibilities for economic expansion in the region of settlement are augmented. Though Java's population continues to grow, the transfer of some Javanese can make room for greater population growth within Java itself. At the same time, an increased availability of resources within Java can help to speed up the process of resource development in Sumatra. A greater measure of industrialization can then be encour-

¹¹ I.e., an optimum corresponding to given levels of technique and organization, as well as to expected changes therein.

aged in both areas since, through a widening of the economic flow, the manufactured goods can more profitably be disposed of.¹²

The nature and amount of these multiplying effects merit the close study of economists. It will help to determine what rate of migration is likely to yield the most satisfactory returns. The assistance needed by the migrants can be costly, requiring large financial resources, especially if a programme of large volume is to be carried out rapidly. Funds are also needed for other purposes of no less urgency as, for example, industrialization. There are, without doubt, diminishing returns when the programme is unduly expanded. On the other hand, the enlargement of a small migration programme might be found to promise increasing returns.

¹² It is probably not irrelevant, in this context, to cite the example of the United States, where population was at first concentrated along the Atlantic sea-board, but settlement of interior regions was positively stimulated by various measures, notably the Homestead Acts. Initially, settlement of the interior parts of the North American continent proceeded under conditions of considerable lawlessness involving many social hardships, but as settlers became more numerous normal administrative conditions were eventually established. This movement brought into use vast new resources and, thereby, incidentally stimulated the further growth of industries, both at the Atlantic sea-board and further inland.

Section VIII

SOUTH-EAST ASIA'S POPULATION IN A HISTORIC PERSPECTIVE

1. A rising share in the world's population

All available estimates suggest that South-East Asia's share in the population of the world has been, and will be, rising.

Past estimates of regional and world populations, for dates beginning with 1920, are assembled in each current issue of the United Nations *Demographic Yearbook*; the region defined there as South-East Asia includes Netherlands New Guinea, but excludes Ceylon and China (Taiwan).

With the use of rough methods, regional populations of the world have been estimated for a period from 1950 to 2000 in a recent United Nations publication on future world population growth.¹ Some of those rough and simple assumptions were not entirely realistic; as determined by tests, mortality seems to have been over-estimated in the case of South-East Asia.²

Since population projections of the type shown in the present report are not available for all parts of the

world, a comparison of estimated population growth in the world and its several regions, of which South-East Asia is one, must first be made with the admittedly rough data in the publication referred to above.³ Such a comparison appears in Table 68.

In a world population of 1,810 million in 1920, 2,500 million in 1950, and 4 220 million in 1980, the population of South-East Asia proper amounted to 110 million in 1920, 171 million in 1950 and may attain 315 million in 1980 (the figures are 118, 186 and 348 million respectively when the area is defined to include Ceylon and China (Taiwan)). The percentage of South-East Asia in the total world population, then, changes as follows:

Year	Per cent of world population in South-East Asia	
	I. Excluding Ceylon (and China Taiwan)	II. Including Ceylon and China (Taiwan)
1920	6.1	6.5
1930	6.4	6.9
1940	6.9	7.4
1950	6.8	7.4
1960	7.0	7.7
1970	7.2	7.9
1980	7.5	8.2

¹ *The Future Growth of World Population*, United Nations publication, Sales No.: 58.XIII.2. The medium series of estimates will here be referred to.

² *Ibid.*, p. 61.

³ The estimates of this report will be considered further on.

Table 68

ESTIMATES OF WORLD AND REGIONAL POPULATIONS, 1920-1980^a

Year	World	Northern and western Europe ^b	Northern America ^c	Soviet Union ^d	Latin America ^e	South-East Asia	
						I f	II g
1920	1 810	115	117	158	91	110	118
1930	2 013	122	135	176	109	128	138
1940	2 246	128	146	192	131	155	167
1950	2 500	133	168	181	163	171	186
1960	2 910	140	197	215	206	204	224
1970	3 480	148	225	254	265	250	276
1980	4 220	159	254	297	349	315	348

^a Sources: Data for 1920-1940 from *Demographic Yearbook, 1956*, Tables 2 and 3. Data for 1950-1980 according to medium assumptions in *The Future Growth of World Population*, op. cit.

^b Belgium, Denmark, Finland, France, Iceland, Ireland, Luxembourg, Monaco, the Netherlands, Norway, Sweden, the United Kingdom, the Channel Islands and the Isle of Man.

^c America to the north of Mexico.

^d Within post-1945 boundaries.

^e America to the south of the United States.

^f Including Netherlands New Guinea but excluding Ceylon and China (Taiwan). The population of Netherlands New Guinea is now believed to amount to about 700 000.

^g Region as defined in the present report (including rough estimates for Ceylon and China (Taiwan) but excluding Netherlands New Guinea).

One out of fifteen, or sixteen of the world's inhabitants in 1920 was a South-East Asian, depending on how the limits of the area are defined; in 1980, it may be one out of twelve or thirteen. The rise of South-East Asia's share in the world population seems continuous, except for the 1940-1950 period when, apparently, it was more heavily affected by the war than some other parts of the world.

We shall presently criticize the absolute value of these rough estimates. Their comparison is nevertheless instructive. Thus, in 1920, the population of South-East Asia was about equal to that of either northern and western Europe, or northern America; it was smaller than that of the Soviet Union, and larger than that of Latin America. But ever since the 1920's, South-East Asia's population growth outdistanced that of northern and western Europe, and by 1980 the ratio of these two regional populations will probably be two to one, if not more. Northern America almost kept pace with South-East Asia (defined in the narrower limits) until about 1950, but in the decades to come will increasingly fall behind. The larger population of the Soviet Union will be surpassed by South-East Asia somewhere around 1960 or 1970. Only the population of Latin America seems to increase with still greater speed: smaller than that of South-East Asia in all decades of the past, it may equal, or even exceed it in the relatively near future.

The rough estimates for the future which have just been compared are not in agreement with the more refined estimates presented in this report. In preparing population projections for the world as a whole, it has been feasible to employ only crude models which are

mere approximations to actual conditions and, as has been pointed out, South-East Asian mortality probably was assessed too high. In other respects, the crude model used for South-East Asia in the context of world population estimates resembles the system of conservative assumptions used in the present report.

As a by-product of estimated future world and regional populations, rough estimates of future populations for all countries of the world up to 1975 have also been obtained and published in the report referred to.⁴ Those estimates depend on a generalized formula by which country estimates are derived from regional estimates, detailed study of population trends in each of the world's countries having been impossible at the time. The approximate nature of those derived country estimates can be gauged by comparing them with the more elaborate estimates for 1975 in this report, as is done in Table 69.

Except for British Borneo, Indonesia, Laos, Portuguese Timor and Viet-Nam, the rough derived future estimates seem to be definitely on the low side, falling even below the detailed projection in which a future fertility decline is speculatively allowed for. The derived rough figures seem to be severe under-estimates in the cases of the Philippines and Singapore.⁵

As discussed in Sections II, III and IV of this report, special considerations may apply in each instance,

⁴ Presented in *The Future Growth of World Population*, op. cit., pp. 72-75.

⁵ And possibly Burma, if it is admitted that the official population estimate for 1950 may have fallen considerably short of actual population.

Table 69

COMPARISON OF POPULATION ESTIMATES IN 1975 FOR INDIVIDUAL COUNTRIES OF SOUTH-EAST ASIA, OBTAINED BY DIFFERENT SETS OF METHODS (IN MILLIONS)

- A. *Derived rough estimates according to The Future Growth of World Population.*
 B. *Conservative estimates of the present report.*
 C. *Low-mortality estimates of the present report.*
 D. *Moderate-fertility-decline estimates of the present report.*
 E. *Derived rough estimates as percentages of conservative estimates (100 A : B).*

Country	A	B	C	D	E = 100 A : B
British Borneo	1.7	1.6	1.8	1.5	106
Burma	27.4	28.8	38.4 ^a	27.9	95
Cambodia	6.4	7.5	8.3	7.2	85
Indonesia	122	123	137	119	99
Laos	2.2	2.2	2.4	2.1	100
Malaya	10.2	11.6	11.9	11.1	88
Philippines	34.1	42.8	47.0	41.2	80
Portuguese Timor	0.7	0.7	0.8	0.7	100
Singapore	2.2	2.7	2.7 ^b	2.6	81
Thailand	32.1	35.8	39.8	34.6	90
Viet-Nam	40.4	40.2	43.0	38.9	100
TOTAL	279.4	296.9	333.1	286.8	94
Ceylon	14.1	15.5	15.5 ^b	15.0	90
China (Taiwan)	15.6	17.7	17.7 ^b	17.0	88
TOTAL	309.1	330.1	366.3	318.8	94

^a Estimate implies a larger population in 1950 than officially estimated.

^b Result of conservative projection, no alternative low-mortality assumption having been made in this instance.

making some future estimates more plausible than others. The rough estimates of the earlier report, while generally on the low side, are not entirely outside the range of conceivable future contingencies. But the comparisons of Table 69 make it appear that South-East Asia's share in world population can rise even more rapidly than suggested by some of the figures shown in Table 68.⁸

2. Earlier centuries

In historic times, South-East Asia's part in the world has fluctuated with the rise and fall of civilizations. But contacts were then mostly confined to neighbouring regions, making world-wide comparisons irrelevant.

Remnants of an extensive ancient irrigation system in eastern Ceylon, the ruins of Angkor Vat in Cambodia, and the pagodas of Borobudur in Java, are all witness to the fact that large populations have existed in certain areas of South-East Asia during earlier epochs. These ancient civilizations have, however, declined and their continuity has been interrupted. The former seat of the Khmer Empire, in Cambodia, became overgrown with jungle and has only recently been re-discovered. The dry zone of Ceylon, once the centre of a thriving culture, became infested with malaria and remained depopulated for many centuries, to be partially resettled only in the present one.

Why these ancient and probably populous cultures should have vanished is a riddle that has not yet been solved. Warfare, invasions and conquest may have been one set of causes; internal social disintegration may have been another. When the society could no longer maintain the elaborate irrigation works, economic ruin became complete with a renewed spread of malaria, which frustrated all subsequent attempts at reconstruction.

During many centuries, much of South-East Asia was in a state of flux. Descending from the mountains bordering the south of China, Burmese, Thais and Annamites gradually penetrated southward, overcoming the resistance of the Mons and Khmers previously dominant in the area. Moslem rulers established themselves in Malaya, Indonesia and part of the Philippines. European powers eventually conquered large parts of the region and gradually widened their domains. An era of relative peace began in most coastal regions in the nineteenth century, but land conquests in the interior continued for another hundred years. At the turn of the century, European powers were joined by the United States and Japan, who annexed the Philippines and the Chinese island of Taiwan, respectively. The present phase of population growth in South-East Asia probably gathered momentum during the nineteenth century as a by-product of colonial policies aiming at internal

⁸ If it can be assumed that the sum of the rough estimates for world regions other than South-East Asia is accurate, a figure of 3,520 million in 1975 results for all those parts of the world combined. To this the present alternative estimates of 318.8, 330.1 or 366.3 million for South-East Asia in 1975 may be added to make a revised world total. Of this world total, South-East Asia (including Ceylon and China (Taiwan)) would constitute 8.3, 8.6 and possibly even 9.4 per cent.

pacification and an expansion of commercial exports. Until then, population was rather small,⁷ and perhaps no larger than it had been a thousand years previously. But, as the regions of the world were drawn together into inextricable interdependent relationships, the importance of South-East Asia to the rest of the world rose rather conspicuously.

How much the regional population grew during the nineteenth century cannot now be determined without much painstaking research; it may very well have tripled, or quadrupled. Relatively peaceful conditions played their part. In the view of some authors, the stimulation of export crops, under the culture system practised in Java from 1830 to 1870, and the introduction of estates and plantations, notably in Ceylon and Malaya, have provided an additional impetus.⁹ The settlement of cash crop regions in the deltas of Burma, Thailand and southern Viet-Nam, and the intensification of agriculture in Ceylon, Java and China (Taiwan), considerably enlarged the basis of livelihood for the increasing populations while at the same time introducing sharp differentiations in their class structure. With the turn of the century, considerable numbers of immigrants from China and India began to appear, and these now constitute important minorities in the populations of some countries. An increasing concern for the education and welfare of the indigenous people eventually began to manifest itself in a reduction of the normally prevailing high rates of mortality.

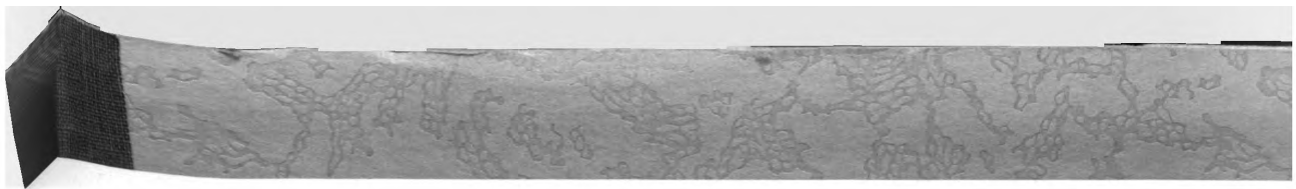
3. The present century

Substantial reductions of mortality have probably not been achieved until the present century. By mid-century the rate of progress, at least in certain limited areas, has become truly astounding. Reliable statistics for Ceylon, China (Taiwan), Malaya and Singapore render an eloquent testimony of recent achievements. It is inevitable that similar progress will also be made in other areas, though perhaps not always so rapidly.

Even so, population growth has not been uniformly rapid in the past three decades. The figures presented in Table 68 (including Ceylon and China (Taiwan)) indicate a regional increase of 19 per cent in 1920-1930, of 21 per cent in 1930-1940 and of 11 per cent in 1940-1950. It is probable that the world-wide influenza epidemic of 1921 exacted its toll of human lives also

⁷ Dobby estimates at only 10 million the population of South-East Asia—presumably its continental part in the year 1800 (Dobby, *Southeast Asia*, London, 1955) but this figure, like the estimate of 4.5 million for Java in 1815, and 1.5 million for the Philippines in 1799, appears improbably small. Little is known of the populations of areas rarely visited by westerners at that time, while in more accessible areas censuses of a modern type were generally not carried out until late in the 19th century. According to estimates assembled by Sarkar, the population of Ceylon was then still declining, from 1.1 million in 1789 to 736,000 in 1814 (N. K. Sarkar, *The Demography of Ceylon*, Ceylon Government Press, 1957).

⁹ It is quite possible that the social and administrative changes associated with colonial plantation systems have reduced mortality from epidemics, famine and strife, and that they have loosened, to some extent, the control of villages or kinship groups over the frequency of marriage. But whether this has actually been the case has not been demonstrated.



in South-East Asia. In the 1940's, as a result of active warfare, military occupation and the disruption of normal channels of trade, there was another recrudescence of high mortality combined with some temporary decreases in the birth rate; this is confirmed by available statistics, some of them fragmentary, and inferred from the analysis of recent data on age structure, though not very reliably.

The refined analysis of age structure, according to various censuses, also leads to the view that birth rates, though high, have undergone some fluctuations in the past.⁹ Birth rates have not been exactly constant but they have, so far, not shown any definite trend. The decline in death rates is now well established but, as shown by the experience of the 1940's, temporary reversals can also occur. The risk of loss of lives following a disruption of normal commerce is probably greatest in agrarian regions of densest settlement. Both in Tonkin and in Java, famines resulting from the Second World War probably attained severe proportions.

The future increase in regional population (Ceylon and China (Taiwan) being included), according to the conservative assumptions of constant fertility and a continuing decline in mortality, will be by 24 per cent in 1950-1960, 27 per cent in 1960-1970 and 30 per cent in 1970-1980. As there have been relative birth deficits during the Second World War, a slightly reduced proportion of the population will be of child-bearing ages in the 1960's; this effect will wear off in the 1970's causing a further acceleration in the rate of population growth, unless once again new and unforeseeable factors emerge which tend to slow it down.

Unfavourable circumstances can delay declines in mortality, but only catastrophic conditions can prevent them entirely. This makes it debatable how long the high level of fertility can be maintained.

The encouragement of families with large numbers of offspring seems to be a feature common to patriarchal societies and systems of extended families.¹⁰ Despite considerable heterogeneity in the cultures among South-East Asia's peoples, the large family, the clan, or the village have been the corner-stones of society. Profound social and economic changes may tend to weaken them with time and, in doing so, can also deprive societies and individuals of one moral frame of reference, in whose absence a recrudescence of socially disruptive forces may have to be feared. This problem of the influence of family and kinship groups is fundamental in the future of Asian society and culture. Incidentally, it may have important repercussions on future population trends. But it is a lesson of history that cultural features of the type referred to change but slowly, unless assailed by rather severe circumstances.

⁹ Analysis of age distributions from Burmese censuses have led Bernadelli to the discovery of "population waves", caused by an apparent recurrence of relatively low birth rates once every 30 years (See R. M. Sundrum, *Population Statistics of Burma*, Economic Research Project, University of Rangoon, Statistical Paper No. 3, December 1957). Rough calculations suggest that similar fluctuations have also occurred in the birth rates of the Philippines and Thailand. The fluctuations are of the order of 5 or 10 per cent. The subject is one which merits further study.

¹⁰ UNESCO, *Culture and Human Fertility*, Paris, 1954.

The projections of the present report are based on the assumption that the established population trends will not be affected by abrupt changes, such as those occasioned by war, famine, or some major social disaster. All available records indicate that, barring severe disrupting events, population trends are usually fairly continuous.

A regional population ranging between 300 and 400 million by 1980 must then be regarded as practically certain. In the longer run, population trends may deviate increasingly from those projected, but it is probable that by the end of the century South-East Asia will contain between 400 and 600 million inhabitants, with the prospect of further increases in the next.

Populations of the order of 400 or 600 million are at this time contained in two neighbouring regions of comparable land area: the Chinese mainland, and the Indo-Pakistani subcontinent.¹¹ Though various problems will result, there is no reason to think that a population of comparable size cannot be supported in South-East Asia. Nevertheless, the long-run prospect gives occasion for much serious thought. In particular, consideration must be given to the facts that (1) very large numbers will be attained within a very short time, (2) even larger numbers will ultimately result unless continued population growth is terminated rather abruptly, and (3) the balance of inter-regional relationships will be profoundly altered when South-East Asia, hitherto a region of comparatively abundant resources, is no less densely settled than the neighbouring population giants, China and India, are now. If planning for South-East Asia's future is not to be confined to the immediate short range, there is a certain urgency in making the best possible use of its resources at a time when they are still relatively bountiful.

4. Economic factors

Whether South-East Asia's role in the world will continue to increase depends upon factors other than population alone.

The dominant feature of the economic situation in countries of South-East Asia is the low material plane of living. Great efforts are being deployed to raise the level of living through systematic action in the countries themselves, and with the aid of international assistance. The aim which inspires these efforts is clear.

The means of attaining such an objective are also well known. To raise the level of living, it is necessary

¹¹ In 1956 according to official estimates, China (without Taiwan) had 621,225,000 inhabitants on 9,761,000 square kilometres of land, or 64 inhabitants per square kilometre; but it is known that about 99 per cent of this population live on less than one-half of the land area, with an average density at least twice as high. In India, 387,500,000 inhabitants were estimated for a land area of 3,289,000 square kilometres, an average density of 118 per square kilometre. In South-East Asia (defined to include Netherlands New Guinea, but exclude Ceylon and China (Taiwan)), an estimated population of 190,000,000 on 4,489,000 square kilometres in 1956, gives an average density of 42, i.e., about one-third the density of India and of the part of China containing 99 per cent of China's population. Source: United Nations, *Demographic Yearbook*, 1957, Tables 1 and 2.

to cultivate more land, to increase yields, to raise the productivity of labour, to increase foreign trade and improve its terms, to promote industrialization of a suitable type, and to bring about, directly or incidentally, a geographic re-distribution of the population.

Nor is there anything novel about the methods of effective implementation. Generally speaking, the same types of methods are pertinent in South-East Asia as those which have facilitated a rise in living levels for increasing populations in other parts of the world. These methods have already been introduced in South-East Asia, with conspicuous material results such as those noted in Section V of this report. So far, however, these results have not produced any sizeable improvement in average living levels for a regional population which has doubled within the past half-century.

As also indicated in Section V, these methods have not yet tapped all the available resources. There are still unused lands. The yields of cultivated lands are mediocre in comparison with some technologically more advanced countries. Implements are few, the productivity of labour is low, and raw materials, exported in large quantity, are still scarcely utilized in local industry.¹² Foreign trade is not conducted efficiently with a view to securing the needed productive investments. Great possibilities for economically useful migration subsist.¹³

The methods sought to implement a rise in South-East Asian levels of living, therefore, are not essentially new, at least so far as the strictly economic aspect is concerned. But past efforts in this direction have scarcely sufficed to keep pace with the increase of populations. In a sense, therefore, population growth has tended to make unattainable the objective of raising material standards. More intensive and better coordinated efforts in the future may succeed in bringing about an acceleration of productivity increments sufficient for a rise in levels of living, though population itself will increase more rapidly than heretofore. The question is appropriate whether, in view of accelerated population growth, the nature of the methods employed must not also be re-examined.

So far, the economic methods have not radically altered the social framework within which they were being employed. For a period of time, and within

¹² For a long time, South-East Asia has exported large quantities of raw material and agrarian produce. With increases of the regional population, smaller amounts of produce and materials may remain available for export, but products of regional industries may increasingly enter into the balance. It is difficult to foresee whether the terms of trade will then be improved, since similar changes will also occur in other world regions. But, as the trend towards increased global economic interdependence will hardly be reversed, South-East Asia's foreign trade will probably be no less important in the future than it has been in the past.

¹³ In the past, South-East Asia has been the receiving area of considerable numbers of Chinese and Indian migrants. Political conditions no longer seem favourable for much continued migration of this type. International migration, then, may remain relatively unimportant for the future of this area, especially when the indigenous population itself attains very large numbers. By contrast, internal migration in almost every South-East Asian country can be on a large scale, with important economic and social consequences, some of which have been commented on in Sections VI and VII.

certain limits, this is possible. But nothing can grow indefinitely without an eventual change in its basic functional structure. Population growth itself introduces a radical change into the existing social framework, to which other commensurate changes will eventually have to respond. At the same time it provides an opportunity for structural changes because a growing and youthful population is more flexible than one that is stagnant and has a larger proportion of older persons.

With prevailing demographic conditions, the size of the labour force will be augmented some 3 or 4 per cent each year by new workers seeking their first remunerative employment. To find adequate employment is an economic problem, but more important still is the problem of allocating this young labour force among occupations and activities whose expansion will determine the changing structure of the growing economy of the future. Adequately trained, these young persons can be directed into professions other than those exercised by their fathers, and a skilled industrial labour force will eventually be created. Perhaps the key problem of South-East Asia's economic future lies precisely in the training and direction which can be given to this young and growing segment of workers. For, as has lately been pointed out, that country is under-developed which is under-stocked with personnel of suitable technological qualifications.¹⁴ And this is not an economic, but an eminently social, problem.

5. The basically social nature of the problem

To settle new lands is a complex undertaking with profound social repercussions. To increase yields—at first thought a mere question of technique—is a social problem, likely to run into opposition with routine, customs and traditions. Thus, from a technical point of view, one may recommend the planting of rice in accordance with Japanese methods, which are of demonstrated efficiency, and by which yields can be doubled; and yet these methods cannot easily be transferred to a foreign clime, where the customary way of living differs from that of the Japanese peasants. Social change is even more radical because workers move from a rural to an urban environment, submit to the discipline of the factory rather than that of a paternalistic workshop, and have to provide for the housing and education of their families in surroundings to which they are not yet accustomed. Innovation and initiative of an untried kind are likewise required if foreign trade is to be transacted on favourable terms.

In short, feasible technological progress depends to a large extent on the possibilities of effecting those social changes without which no new method can be introduced. If the system of cultural values and norms which is the foundation of every society suffers injury from the use of new techniques, there is the severe risk that the benefit of technological progress can be cancelled out by the ensuing moral and social disintegration.

¹⁴ Jean Fourastié, "Les travaux de la Commission de l'équipement scolaire du Commissariat général au plan", *Population (Paris)*, 13th year, No. 2, April-June 1958, p. 226.

Paradoxical as it may seem, it is the lack of people that inhibits economic and social development. When the countries of South-East Asia have enough people capable of directing and carrying out the required economic and social changes, the budgetary and financial methods to implement the change will inevitably be found.

A large potential for economic development still waits to be used to the full. But soon, with the

further increase in population, this potential will be greatly depleted. The best possible use, therefore, must be made of those years in the nearest future when population growth can still be turned to good advantage. The task faced by the countries of South-East Asia is immense. It presents a challenge to the enthusiasm of the young generation which, in that part of the world, comprises nearly one-half of the total population.

ANNEXES

Annex I

SYNOPTIC TABLES ON DATA, METHODS AND ESTIMATES USED IN THE PROJECTION OF THE POPULATIONS OF SOUTH-EAST ASIAN COUNTRIES *

TABLE I. DATA USED IN THE PROJECTIONS

<i>Country</i>	<i>Date of census results used</i>	<i>Use of vital statistics data in the projections</i>	<i>Other data used</i>
British Borneo			
Brunei	1931, 1947	} Available data too limited for use	—
North Borneo	1931, 1951		
Sarawak	1931, 1947		
Burma	1921, 1931, 1941, ^a 1953-54 ^b	Available data too limited for use	—
Cambodia	—	Data not available	1921 official estimate by sex and age; estimates of total population, 1937, 1948, 1955
Ceylon	1946, 1953	Official data, adjusted for incomplete birth and death registration	Post-enumeration survey, 1953, verifying under-registration of births and deaths
China (Taiwan)	—	Official data, with adjustment for deaths at ages 0-4	Data on population by sex and age according to continuous population registers
Indonesia	1930 ^c	Selected data for areas with presumably more accurate registration	1954 voting registration distinguishing population aged over and under 18 years
Laos	—	Data not available	Official estimates for 1937, 1946 and 1955
Malaya	1947, 1957 ^a	Official data, adjusted for incomplete birth and death registration	Statistics on international migration
Philippines	1905, 1918 1939, 1948	Official data incomplete; age distribution of deaths used as gauge to estimate recent mortality trends	1956 Sample Surveys of household data on sex-age composition and on children born to married women
Portuguese Timor	1950	Available data too limited for use	—
Singapore	1947, 1957 ^a	Official data, adjusted for incomplete birth and death registration	Statistics on international migration
Thailand	1937, 1947	Official data incomplete; age distribution of deaths used as gauge to estimate recent mortality trends	—
Viet-Nam	—	Sample data for early periods	Recent official estimates

* A more detailed account of methods used for estimating population trends in South-East Asian countries will be presented in a forthcoming publication dealing with future population estimates for this and other regions of Asia, now being prepared.

^a Data on total population only.

^b Sample data secured from censuses conducted in parts of the country.

^c Data distinguishing children "not yet able to walk", other children, and adults.

TABLE. II. METHODS USED TO ESTABLISH BASIC ESTIMATES OF POPULATION BY SEX AND AGE GROUPS,
FERTILITY AND MORTALITY ^a

<i>Country</i>	<i>Derivation of population by sex and age, for base date ^b</i>	<i>Estimation of levels of fertility and mortality ^c</i>
British Borneo		
Indigenous population . . .	Stable population model with observed increase rate and observed proportion aged 5-14 years	Implied in the stable population
Non-indigenous population .	Sex-age composition from the censuses	Malaya's fertility and mortality levels applied by analogy
Burma	Sex-age composition from the censuses. Age structure verified with data of 1953-54 censuses	Estimated from 1921 and 1931 censuses verified with 1953-54 data
Cambodia	Sex-age composition of Thailand's population applied. 1921 official estimates suggest close resemblance of the two populations	Thailand's levels used by analogy
Ceylon	Sex-age composition from the censuses	Estimated from census and vital statistics after adjustment for under-registration
China (Taiwan) ^d	Sex-age composition from 1950 and 1955 registers	Fertility from registered births. Registered mortality for ages 5 and over, estimated mortality for ages 0-4
Indonesia	Stable population model based on critical evaluation of all available data on sex-age composition and vital rates	Estimated from the stable population. For 1940-50 it was assumed that mortality was unusually high and fertility unusually low
Laos	Stable population model with observed rate of increase and gross reproduction rate equal to 3	Implied in the stable population
Malaya ^d	Sex-age composition from 1947 census. Allowance for effects of migrations	Estimated from census and vital statistics after adjustment for under-registration
Philippines	Age composition from 1956 sample data adjusted to agree with 1948 census totals	Fertility estimated from data covering 1885-1950. Mortality from 1919 and 1939 censuses with recent trend estimated from vital statistics
Portuguese Timor	Stable population model with observed rate of increase and gross reproduction rate equal to 3	Implied in the stable population
Singapore ^d	Sex-age composition from 1947 census. Allowance for effects of migration	Estimated from census and vital statistics after adjustment for under-registration
Thailand	Sex-age composition from the censuses	Estimated from census data and vital statistics
Viet-Nam ^d	Stable population model based on critical evaluation of all available data on sex-age composition and vital rates	Estimated from the stable population. For 1945-1955 it was assumed that mortality was unusually high and fertility unusually low

^a See also footnote * on preceding page.

^b Unless otherwise indicated, the base date is mid-year 1950. In all instances, the 0-4 age group was estimated separately, to conform with estimated levels of fertility and mortality.

^c Unless otherwise indicated, the base period is 1950-1955.

^d Base date mid-year 1955 and base period 1955-1960.

TABLE III. VITAL INDICES IMPLIED IN THE CONSERVATIVE PROJECTION ^a

Country	Expectation of life at birth (in years) ^b Both sexes		Infant deaths per 1 000 live births per year ^c		Sex-age adjusted birth rate per 1 000 per year ^d (assumed constant)
	1950-1955	1975-1980	1950-1955	1975-1980	
British Borneo					
1. Indigenous population	27.5	40.0	261.5	185.7	48.3
2. Non-indigenous population	50.0	63.2	133.8	60.9	54.2
Burma	32.5	45.0	228.9	159.1	45.5
Cambodia	39.1	52.1	185.7	121.2	48.5
Ceylon	52.7	65.6	133.8	60.9	46.6
China (Taiwan)	59.2 ^e	68.8	77.5 ^e	26.5	48.0
Indonesia	37.5	50.0	199.2	133.8	42.8
Laos	32.5	45.0	228.9	159.1	47.6
Malaya	52.5 ^e	63.2	121.2 ^e	60.9	54.2
Philippines	42.5	55.0	172.2	108.8	53.0
Portuguese Timor	30.0	42.5	244.7	172.2	47.6
Singapore	60.0 ^e	69.4	77.5 ^e	26.5	56.2
Thailand	39.1	52.1	185.7	121.2	48.5
Viet-Nam	42.5 ^e	52.5	172.2 ^e	121.2	40.7

^a Crude birth and death rates are presented in Table 5, page 9.

^b It was assumed that sex-age specific mortality rates conform to one model life table only, except in the cases of Ceylon, China (Taiwan), Singapore and Thailand. In these instances, sex-age specific rates were selected from two or more model life tables, according to available indications. The expectation of life is that of the model table where only the one was used; where rates were selected from two or more tables, expectation of life was determined by separate computation.

^c Infant deaths per 1 000 live births as implied in the mortality assumptions.

^d The calculation of sex-age adjusted birth rates is explained in the United Nations publication *Manual III. Methods for Population Projection by Sex and Age*, op. cit.

^e For 1955-1960.

TABLE IV. VITAL INDICES IMPLIED IN ALTERNATIVE PROJECTIONS

Country	Low-mortality projection ^a Expectation of life at birth (in years) ^c Both sexes		Declining fertility projection ^b Sex-age adjusted birth rate per 1 000 per year, ^d 1975-1980 assuming	
	1950-1955	1975-1980	Moderate decline	Rapid decline
British Borneo				
1. Indigenous population	30.0	55.0	39.8	31.4
2. Non-indigenous population	50.0	65.8	44.7	35.2
Burma ^e	41.6	65.6	37.5	29.6
Cambodia	41.6	65.6	40.0	31.5
Ceylon . . . . .	...	...	38.4	30.3
China (Taiwan) . . . . .	...	...	39.6	31.2
Indonesia	40.0	65.8	35.3	27.8
Laos	35.0	60.4	39.3	30.9
Malaya	52.5 ^f	65.8	44.7	35.2
Philippines	45.0	65.8	43.7	34.4
Portuguese Timor	32.5	57.6	39.3	30.9
Singapore . . . . .	...	...	46.4	36.5
Thailand	41.6	65.6	40.0	31.5
Viet-Nam	45.0 ^f	65.8	33.6	26.5

^a No alternative mortality assumptions were made for Ceylon, China (Taiwan) and Singapore. Fertility as in conservative projection.

^b Assuming fertility declines beginning in 1960. Mortality as in conservative projection.

^c See Table III, footnote ^b.

^d See Table III, footnote ^d.

^e On the low-mortality assumption, a larger population was calculated already for 1950, the base date.

^f For 1955-1960.

Annex II

DETAILED RESULTS OF CONSERVATIVE POPULATION PROJECTIONS FOR COUNTRIES OF SOUTH-EAST ASIA

EXPLANATORY NOTE

Presented here are the results of population projections made with conservative assumptions, as explained in Section I of the text. These results are recommended for general use unless good reasons appear for making different assumptions.

The tables are arranged, for each country, on two facing pages. On the first page are shown the results for both sexes combined, both in detail (by five-year age groups) and in summary form (by fifteen-year age groups); the latter data are also expressed as percentages of total population at each of the successive dates. On the second page the detailed results are shown separately for either sex.

For convenience, and irrespective of their presumable accuracy, all absolute figures shown have been rounded to the nearest thousand. The sums are obtained by addition of the

rounded detailed figures though, in some instances, a further error is thereby introduced. It was felt, however, that confusion is best avoided by rounded sums which are fully consistent with every detailed rounded figure shown. The rounded figures, and their sums, have also been used in the computation of percentages, but these percentages, because of rounding, do not invariably make the precise sum of 100 per cent when added together.

All estimates are affected by errors in the assessment of population size and structure at the base date, and of fertility and mortality levels in the base period, as well as by the extent to which the assumptions here made are relevant to future conditions. Though, in the absence of precise criteria, use of the conservative projections is recommended, some consideration should be given to the alternative projections tabulated in Annex III and Annex IV, and the special alternatives considered in Section IV of the text.

II. CONSERVATIVE PROJECTIONS

1. BRITISH BORNEO (Brunei, North Borneo, and Sarawak)

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	151	168	189	215	244	278	323
5-9	127	131	150	170	197	226	261
10-14	113	121	125	144	166	192	221
15-19	96	109	117	121	140	162	188
20-24	83	91	103	113	117	136	157
25-29	75	77	85	98	107	111	131
30-34	66	69	72	80	93	103	107
35-39	60	61	63	67	75	89	98
40-44	51	55	56	59	63	71	83
45-49	41	46	49	51	54	58	66
50-54	32	35	41	44	46	49	54
55-59	24	27	30	35	39	42	45
60-64	17	19	22	25	29	34	35
64-69	12	13	14	17	20	24	27
70-74	6	8	8	10	12	14	18
75-79	3	4	4	5	6	7	9
80-84	1	2	2	2	2	2	4
85 and over	0	0	0	0	0	0	2
All ages	958	1 036	1 130	1 256	1 410	1 598	1 829
<i>Broad age groups (in thousands)</i>							
0-14	391	420	464	529	607	696	805
15-29	254	277	305	332	364	409	476
30-44	177	185	191	206	231	263	288
45-59	97	108	120	130	139	149	165
60-74	35	40	44	52	61	72	80
75 and over	4	6	6	7	8	9	15
All ages	958	1 036	1 130	1 256	1 410	1 598	1 829
<i>Per cent of total population</i>							
0-14	40.8	40.5	41.1	42.1	43.0	43.6	44.0
15-29	26.5	26.7	27.0	26.4	25.6	25.6	26.0
30-44	18.5	17.9	16.9	16.4	16.4	16.5	15.7
45-59	10.1	10.4	10.6	10.4	9.9	9.3	9.0
60-74	3.7	3.9	3.9	4.1	4.5	4.5	4.4
75 and over	0.4	0.6	0.5	0.6	0.6	0.6	0.8
All ages	100.0	100.0	100.0	100.0	100.0	100.1	99.9

II. CONSERVATIVE PROJECTIONS (*continued*)

1. BRITISH BORNEO (Brunei, North Borneo, and Sarawak)

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	77	85	96	109	124	141	164
5-9	65	67	76	86	100	114	132
10-14	58	62	64	73	84	97	112
15-19	49	56	60	62	71	82	95
20-24	43	47	53	58	60	69	80
25-29	39	40	44	51	55	57	67
30-34	35	36	37	41	48	53	55
35-39	33	33	33	35	39	46	51
40-44	29	30	30	31	33	37	43
45-49	23	26	27	27	28	30	34
50-54	18	20	23	24	24	25	28
55-59	13	15	17	19	21	22	23
60-64	9	10	12	14	16	18	18
65-69	6	7	7	9	11	13	14
70-74	3	4	4	5	7	8	10
75-79	1	2	2	3	3	4	5
80-84	0	1	1	1	1	1	2
85 and over	0	0	0	0	0	0	1
All ages	501	541	586	648	725	817	934
FEMALES							
0-4	74	83	93	106	120	137	159
5-9	62	64	74	84	97	112	129
10-14	55	59	61	71	82	95	109
15-19	47	53	57	59	69	80	93
20-24	40	44	50	55	57	67	77
25-29	36	37	41	47	52	54	64
30-34	31	33	35	39	45	50	52
35-39	27	28	30	32	36	43	47
41-44	22	25	26	28	30	34	40
45-49	18	20	22	24	26	28	32
50-54	14	15	18	20	22	24	26
55-59	11	12	13	16	18	20	22
60-64	8	9	10	11	13	16	17
65-69	6	6	7	8	9	11	13
70-74	3	4	4	5	5	6	8
75-79	2	2	2	2	3	3	4
80-84	1	1	1	1	1	1	2
85 and over	0	0	0	0	0	0	1
All ages	457	495	544	608	685	781	895

II. CONSERVATIVE PROJECTIONS

2. BURMA

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	2 863	3 128	3 429	3 767	4 162	4 662	5 291
5-9	2 292	2 500	2 775	3 085	3 428	3 830	4 333
10-14	2 079	2 199	2 409	2 686	2 997	3 342	3 745
15-19	1 908	1 998	2 121	2 334	2 610	2 921	3 267
20-24	1 691	1 806	1 900	2 027	2 240	2 516	2 827
25-29	1 461	1 582	1 700	1 798	1 929	2 142	2 418
30-34	1 283	1 356	1 480	1 600	1 704	1 838	2 054
35-39	1 062	1 181	1 259	1 385	1 509	1 618	1 756
40-44	999	965	1 085	1 167	1 295	1 422	1 535
45-49	852	892	873	992	1 078	1 207	1 336
50-54	687	742	789	781	897	985	1 114
55-59	479	577	633	684	687	798	885
60-64	357	381	468	523	575	586	689
65-69	227	262	287	359	408	457	473
70-74	144	148	175	195	251	292	333
75-79	70	78	82	100	115	151	181
80-84	28	29	32	36	46	54	74
85 and over	5	7	8	10	12	16	21
All ages	18 487	19 831	21 505	23 529	25 943	28 837	32 332
<i>Broad age groups (in thousands)</i>							
0-14	7 234	7 827	8 613	9 538	10 587	11 834	13 369
15-29	5 060	5 386	5 721	6 159	6 779	7 579	8 512
30-44	3 344	3 344	3 824	4 152	4 508	4 878	5 345
45-59	2 018	2 211	2 295	2 457	2 662	2 990	3 335
60-74	728	791	930	1 077	1 234	1 335	1 495
75 and over	103	114	122	146	173	221	276
All ages	18 487	19,831	21 505	23 529	25 943	28 837	32 332
<i>Per cent of total population</i>							
0-14	39.1	39.5	40.1	40.5	40.8	41.0	41.3
15-29	27.4	27.2	26.6	26.2	26.1	26.3	26.3
30-44	18.1	17.7	17.8	17.6	17.4	16.9	16.5
45-59	10.9	11.1	10.7	10.4	10.3	10.4	10.3
60-74	3.9	4.0	4.3	4.6	4.8	4.6	4.6
75 and over	0.6	0.6	0.6	0.6	0.7	0.8	0.9
All ages	100.0	100.1	100.1	99.9	100.1	100.0	99.9

II. CONSERVATIVE PROJECTIONS (continued)

2. BURMA

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 448	1 581	1 735	1 908	2 108	2 361	2 680
5-9	1 160	1 264	1 402	1 561	1 736	1 939	2 193
10-14	1 055	1 115	1 220	1 359	1 518	1 693	1 897
15-19	971	1 016	1 077	1 184	1 322	1 481	1 657
20-24	863	921	968	1 031	1 138	1 276	1 434
25-29	747	810	869	918	983	1 089	1 227
30-34	660	696	760	820	872	938	1 045
35-39	530	609	647	712	774	828	896
40-44	504	481	558	599	665	728	784
45-49	450	446	432	507	550	616	681
50-54	365	387	390	382	454	498	564
55-59	249	301	325	333	331	399	442
60-64	179	194	240	264	275	278	339
65-69	109	128	143	180	202	214	220
70-74	67	69	83	95	123	141	152
75-79	32	35	37	46	55	72	85
80-84	13	13	14	16	21	25	34
85 and over	2	3	3	4	5	7	9
All ages	9 404	10 069	10 903	11 919	13 132	14 583	16 339
FEMALES							
0-4	1 415	1 547	1 694	1 859	2 054	2 301	2 611
5-9	1 132	1 236	1 373	1 524	1 692	1 891	2 140
10-14	1 024	1 084	1 189	1 327	1 479	1 649	1 848
15-19	937	982	1 044	1 150	1 288	1 440	1 610
20-24	828	885	932	996	1 102	1 240	1 393
25-29	714	772	831	880	946	1,053	1 191
30-34	623	660	720	780	832	900	1 009
35-39	532	572	612	673	735	790	860
40-44	495	484	527	568	630	694	751
45-49	402	446	441	485	528	591	655
50-54	322	355	399	399	443	487	550
55-59	230	276	308	351	356	399	443
60-64	178	187	228	259	300	308	350
65-69	118	134	144	179	206	243	253
70-74	77	79	92	100	128	151	181
75-79	38	43	45	54	60	79	96
80-84	15	16	18	20	25	29	40
85 and over	3	4	5	6	7	7	12
All ages	9 083	9 762	10 602	11 610	12 811	14 254	15 993

II. CONSERVATIVE PROJECTIONS (*continued*)

3. CAMBODIA

	(a) <i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	665	764	883	1 003	1 135	1 307	1 538
5-9	518	605	703	820	941	1 073	1 246
10-14	483	503	590	687	804	925	1 057
15-19	432	469	491	576	673	790	910
20-24	356	414	452	475	560	656	772
25-29	283	337	396	435	458	543	638
30-34	239	266	319	379	419	443	526
35-39	215	224	251	303	364	404	430
40-44	183	199	210	237	287	350	389
45-49	150	167	184	195	223	272	334
50-54	118	134	151	168	181	207	255
55-59	87	102	118	134	151	163	189
60-64	63	72	85	100	115	132	144
65-69	43	49	57	68	81	95	109
70-74	27	30	34	40	50	61	72
75-79	14	16	18	21	25	32	40
80-84	6	6	7	8	10	13	17
85 and over	3	3	3	3	3	4	6
All ages	3 885	4 360	4 952	5 652	6 480	7 470	8 672
<i>Broad age groups (in thousands)</i>							
0-14	1 666	1 872	2 176	2 510	2 880	3 305	3 841
15-29	1 071	1 220	1 339	1 486	1 691	1 989	2 320
30-44	637	689	780	919	1 070	1 197	1 345
45-59	355	403	453	497	555	642	778
60-74	133	151	176	208	246	288	325
75 and over	23	25	28	32	38	49	63
All ages	3 885	4 360	4 952	5 652	6 480	7 470	8 672
<i>Per cent of total population</i>							
0-14	42.9	42.9	43.9	44.4	44.4	44.2	44.3
15-29	27.6	28.0	27.0	26.3	26.1	26.6	26.8
30-44	16.4	15.8	15.8	16.3	16.5	16.0	15.5
45-59	9.1	9.2	9.1	8.8	8.6	8.6	9.0
60-74	3.4	3.5	3.6	3.7	3.8	3.9	3.7
75 and over	0.6	0.6	0.6	0.6	0.6	0.7	0.7
All ages	100.0	100.0	100.0	100.1	100.0	100.0	100.0

II. CONSERVATIVE PROJECTIONS (continued)

3. CAMBODIA

(b) Detailed age groups, by sex (in thousands)							
	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	345	387	447	508	575	662	780
5-9	261	314	356	415	476	543	631
10-14	244	254	306	348	407	468	535
15-19	217	238	248	299	341	400	461
20-24	175	208	229	240	291	332	391
25-29	138	165	199	221	231	282	323
30-34	118	129	156	191	213	224	273
35-39	108	110	121	147	183	205	217
40-44	93	99	102	113	138	176	197
45-49	75	83	90	93	105	129	167
50-54	58	65	74	81	85	96	119
55-59	43	49	56	64	71	75	86
60-64	31	34	39	46	53	60	64
65-69	21	23	26	30	36	42	48
70-74	13	14	15	17	21	26	31
75-79	6	7	8	9	10	13	16
80-84	2	2	3	3	4	5	6
85 and over	1	1	1	1	1	1	2
All ages	1 949	2 182	2 476	2 826	3 241	3 739	4 347
FEMALES							
0-4	320	377	436	495	560	645	758
5-9	257	291	347	405	465	530	615
10-14	239	249	284	339	397	457	522
15-19	215	231	243	277	332	390	449
20-24	181	206	223	235	269	324	381
25-29	145	172	197	214	227	261	315
30-34	121	137	163	188	206	219	253
35-39	107	114	130	156	181	199	213
40-44	90	100	108	124	149	174	192
45-49	75	84	94	102	118	143	167
50-54	60	69	77	87	96	111	136
55-59	44	53	62	70	80	88	103
60-64	32	38	46	54	62	72	80
65-69	22	26	31	38	45	53	61
70-74	14	16	19	23	29	35	41
75-79	8	9	10	12	15	19	24
80-84	4	4	4	5	6	8	11
85 and over	2	2	2	2	2	3	4
All ages	1 936	2 178	2 476	2 826	3 239	3 731	4 325

II. CONSERVATIVE PROJECTIONS (*continued*)

4. CEYLON

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	1 270	1 439	1 627	1 867	2 217	2 682	3 232
5-9	965	1 201	1 371	1 561	1 803	2 155	2 623
10-14	794	950	1 185	1 356	1 545	1 788	2 141
15-19	738	785	942	1 176	1 347	1 539	1 782
20-24	674	727	774	931	1 165	1 338	1 531
25-29	596	658	713	761	919	1 153	1 326
30-34	522	581	645	699	749	907	1 141
35-39	454	508	567	632	688	739	896
40-44	394	439	493	552	618	675	727
45-49	328	380	425	478	538	604	661
50-54	255	312	363	408	462	521	586
55-59	193	238	292	343	387	440	499
60-64	141	174	216	269	316	359	409
65-69	98	120	149	188	235	279	319
70-74	65	75	93	119	150	190	228
75-79	36	43	52	65	84	107	138
80-84	16	19	24	29	37	49	64
85 and over	8	8	9	11	14	18	24
All ages	7 547	8 657	9 940	11 445	13 274	15 543	18 327
<i>Broad age groups (in thousands)</i>							
0-14	3 029	3 590	4 183	4 784	5 565	6 625	7 996
15-29	2 008	2 170	2 429	2 868	3 431	4 030	4 639
30-44	1 370	1 528	1 705	1 883	2 055	2 321	2 764
45-59	776	930	1 080	1 229	1 387	1 565	1 746
60-74	304	369	458	576	701	828	956
75 and over	60	70	85	105	135	174	226
All ages	7 547	8 657	9 940	11 445	13 274	15 543	18 327
<i>Per cent of total population</i>							
0-14	40.1	41.5	42.1	41.8	41.9	42.6	43.6
15-29	26.6	25.1	24.4	25.1	25.8	25.9	25.3
30-44	18.2	17.7	17.2	16.5	15.5	14.9	15.1
45-59	10.3	10.7	10.9	10.7	10.4	10.1	9.5
60-74	4.0	4.3	4.6	5.0	5.3	5.3	5.2
75 and over	0.8	0.8	0.9	0.9	1.0	1.1	1.2
All ages	100.0	100.1	100.1	100.0	99.9	99.9	99.9

II. CONSERVATIVE PROJECTIONS (continued)

4. CEYLON

(b) Detailed age groups, by sex (in thousands)							
	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	645	729	825	947	1 126	1 364	1 645
5-9	492	609	694	790	913	1 093	1 332
10-14	404	485	602	687	783	906	1 086
15-19	385	400	481	597	682	780	903
20-24	359	380	395	477	593	679	777
25-29	321	353	375	391	473	590	676
30-34	285	315	348	370	387	469	586
35-39	250	279	309	343	366	383	465
40-44	221	243	272	302	336	360	378
45-49	185	213	235	263	294	328	352
50-54	142	176	203	225	254	284	318
55-59	107	132	164	191	213	241	271
60-64	79	96	119	150	175	196	222
65-69	55	67	82	103	130	153	173
70-74	36	42	52	65	82	105	124
75-79	21	24	29	36	46	58	75
80-84	10	11	13	16	20	26	34
85 and over	5	5	5	6	8	10	13
All ages	4 002	4 559	5 203	5 959	6 881	8 025	9 430
FEMALES							
0-4	625	710	802	920	1 091	1 318	1 587
5-9	473	592	577	771	890	1 062	1 291
10-14	390	465	583	669	762	882	1 055
15-19	353	385	461	579	665	759	879
20-24	315	347	379	454	572	659	754
25-29	275	305	338	370	446	563	650
30-34	237	266	297	329	362	438	555
35-39	204	229	258	289	322	356	431
40-44	173	196	221	250	282	316	349
45-49	143	167	190	215	244	276	309
50-54	113	136	160	183	208	237	268
55-59	86	106	128	152	174	199	228
60-64	62	78	97	119	141	163	187
65-69	43	53	67	85	105	126	146
70-74	29	33	41	54	68	85	104
75-79	15	19	23	29	38	49	63
80-84	6	8	11	13	17	23	30
85 and over	3	3	4	5	6	8	11
All ages	3 545	4 098	4 737	5 486	6 393	7 518	8 897

II. CONSERVATIVE PROJECTIONS (*continued*)

5. CHINA (TAIWAN)

		(a) Both sexes						
		1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	1 163	1 742	1 973	2 277	2 623	3 187	3 983	
5-9	979	1 151	1 693	1 928	2 238	2 591	3 161	
10-14	930	961	1 141	1 682	1 919	2 229	2 584	
15-19	826	914	956	1 136	1 675	1 914	2 224	
20-24	712	773	906	949	1 130	1 669	1 909	
25-29	603	693	764	897	943	1 125	1 664	
30-34	480	591	682	754	888	936	1 118	
35-39	447	478	579	670	743	878	927	
40-44	357	437	464	566	656	730	865	
45-49	283	350	420	448	548	638	712	
50-54	219	268	331	399	428	526	615	
55-59	163	199	247	306	372	401	496	
60-64	128	139	176	220	275	337	367	
65-69	99	100	116	148	187	236	292	
70-74	47	64	75	89	115	147	188	
75-79	26	35	42	51	60	79	104	
80-84	12	15	19	23	28	34	46	
85 and over	4	6	7	9	10	13	17	
All ages	7 478	8 916	10 591	12 552	14 838	17 670	21 272	
<i>Broad age groups (in thousands)</i>								
0-14	3 072	3 854	4 807	5 887	6 780	8 007	9 728	
15-29	2 141	2 380	2 626	2 982	3 748	4 708	5 797	
30-44	1 284	1 506	1 725	1 990	2 287	2 544	2 910	
45-59	665	817	998	1 153	1 348	1 565	1 823	
60-74	274	303	367	457	577	720	847	
75 and over	42	56	68	83	98	126	167	
All ages	7 478	8 916	10 591	12 552	14 838	17 670	21 272	
<i>Per cent of total population</i>								
0-14	41.1	43.2	45.4	46.9	45.7	45.3	45.7	
15-29	28.6	26.7	24.8	23.8	25.3	26.6	27.3	
30-44	17.2	16.9	16.3	15.9	15.4	14.4	13.7	
45-59	8.9	9.2	9.4	9.2	9.1	8.9	8.6	
60-74	3.7	3.4	3.5	3.6	3.9	4.1	4.0	
75 and over	0.6	0.6	0.6	0.7	0.7	0.7	0.8	
All ages	100.1	100.0	100.0	100.1	100.1	100.0	100.1	

II. CONSERVATIVE PROJECTIONS (continued)

5. CHINA (TAIWAN)

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	594	892	1 003	1 159	1 337	1 626	2 033
5-9	502	593	866	979	1 138	1 319	1 611
10-14	475	496	587	859	973	1 132	1 314
15-19	422	468	493	584	855	970	1 129
20-24	359	381	464	489	581	852	968
25-29	311	351	376	459	486	578	849
30-34	253	308	345	371	454	482	574
35-39	238	255	301	339	365	448	477
40-44	185	236	247	294	331	358	441
45-49	148	188	226	238	284	321	348
50-54	112	142	176	213	225	270	307
55-59	81	102	129	160	196	208	251
60-64	60	68	87	112	140	173	186
65-69	43	43	55	71	92	117	146
70-74	18	26	31	40	53	70	90
75-79	9	3	16	20	26	35	47
80-84	4	5	7	8	10	14	19
85 and over	1	2	2	3	3	4	6
All ages	3 815	4 569	5 411	6 398	7 549	8 977	10 796
FEMALES							
0-4	569	850	970	1 118	1 286	1 561	1 950
5-9	477	558	827	949	1 100	1 272	1 550
10-14	455	465	554	823	946	1 097	1 270
15-19	404	446	463	552	820	944	1 095
20-24	353	392	442	460	549	817	941
25-29	292	342	388	438	457	547	815
30-34	227	283	337	383	434	454	544
35-39	209	223	278	331	378	430	450
40-44	172	201	217	272	325	372	424
45-49	135	162	194	210	264	317	364
50-54	107	126	155	186	203	256	308
55-59	82	97	118	146	176	193	245
60-64	68	71	89	108	135	164	181
65-69	56	57	61	77	95	119	146
70-74	29	38	44	49	62	77	98
75-79	17	22	26	31	44	34	57
80-84	8	10	12	15	18	20	27
85 and over	3	4	5	6	7	9	11
All ages	3 663	4 347	5 180	6 154	7 289	8 693	10 476

II. CONSERVATIVE PROJECTIONS (continued)

6. INDONESIA

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	9 812	13 265	14 672	15 903	16 946	18 756	21 738
5-9	8 863	8 825	12 073	13 503	14 779	15 890	17 731
10-14	8 946	8 580	8 575	11 771	13 205	14 492	15 621
15-19	8 181	8 661	8 336	8 357	11 505	12 940	14 236
20-24	7 218	7 819	8 315	8 035	8 087	11 172	12 607
25-29	6 275	6 831	7 440	7 953	7 722	7 804	10 826
30-34	5 412	5 908	6 473	7 093	7 622	7 438	7 550
35-39	4 628	5 065	5 570	6 145	6 774	7 319	7 176
40-44	3 912	4 291	4 737	5 251	5 832	6 468	7 027
45-49	3 254	3 576	3 962	4 413	4 930	5 514	6 153
50-54	2 646	2 911	3 237	3 623	4 072	4 585	5 163
55-59	2 081	2 294	2 558	2 878	3 255	3 693	4 194
60-64	1 556	1 720	1 927	2 179	2 483	2 840	3 255
65-69	1 075	1 194	1 345	1 532	1 761	2 035	2 359
70-74	657	735	834	961	1 117	1 306	1 535
75-79	331	375	433	506	598	711	850
80-84	125	146	172	206	248	303	372
85 and over	30	38	49	61	76	98	125
All ages	75 002	82 234	90 708	100 370	111 012	123 364	138 518
<i>Broad age groups (in thousands)</i>							
0-14	27 621	30 670	35 320	41 177	44 930	49 138	55 090
15-29	21 674	23 311	24 091	24 345	27 314	31 916	37 669
30-44	13 952	15 264	16 780	18 489	20 228	21 225	21 753
45-59	7 981	8 781	9 757	10 914	12 257	13 792	15 510
60-74	3 288	3 649	4 106	4 672	5 361	6 181	7 149
75 and over	486	559	654	773	922	1 112	1 347
All ages	75 002	82 234	90 708	100 370	111 012	123 364	138 518
<i>Per cent of total population</i>							
0-14	36.8	37.3	38.9	41.0	40.5	39.8	39.8
15-29	28.9	28.3	26.6	24.3	24.6	25.9	27.2
30-44	18.6	18.6	18.5	18.4	18.2	17.2	15.7
45-59	10.6	10.7	10.8	10.9	11.0	11.2	11.2
60-74	4.4	4.4	4.5	4.7	4.8	5.0	5.2
75 and over	0.6	0.7	0.7	0.8	0.8	0.9	1.0
All ages	99.9	100.0	100.0	100.1	99.9	100.0	100.1

II. CONSERVATIVE PROJECTIONS (continued)

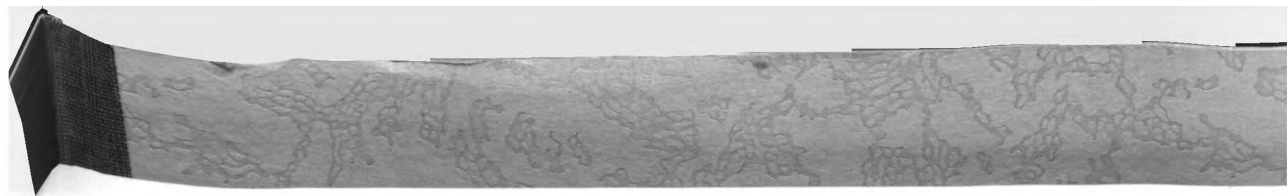
6. INDONESIA

		(b) Detailed age groups, by sex (in thousands)						
		1950	1955	1960	1965	1970	1975	1980
MALES								
0-4	4 961	6 719	7 431	8 054	8 584	9 502	11 014	
5-9	4 483	4 461	6 113	6 835	7 480	8 043	8 974	
10-14	4 536	4 345	4 339	5 964	6 688	7 338	7 909	
15-19	4 157	4 399	4 227	4 234	5 835	6 559	7 211	
20-24	3 677	3 980	4 229	4 078	4 099	5 667	6 389	
25-29	3 206	3 487	3 793	4 049	3 921	3 956	5 490	
30-34	2 774	3 026	3 311	3 621	3 883	3 778	3 827	
35-39	2 376	2 600	2 856	3 144	3 458	3 728	3 643	
40-44	2 002	2 200	2 427	2 687	2 978	3 295	3 571	
45-49	1 649	1 819	2 019	2 249	2 510	2 802	3 120	
50-54	1 322	1 460	1 631	1 830	2 058	2 316	2 604	
55-59	1 021	1 129	1 265	1 431	1 624	1 845	2 095	
60-64	748	829	932	1 060	1 215	1 395	1 601	
65-69	506	562	635	726	840	976	1 136	
70-74	301	337	383	443	517	608	719	
75-79	147	167	193	226	268	320	385	
80-84	54	63	74	89	107	131	162	
85 and over	12	15	10	25	31	40	51	
All ages	37 932	41 598	45 878	50 745	56 096	62 299	69 901	
FEMALES								
0-4	4 851	6 546	7 241	7 849	8 362	9 254	10 724	
5-9	4 380	4 364	5 960	6 668	7 299	7 847	8 757	
10-14	4 410	4 235	4 236	5 807	6 517	7 154	7 712	
15-19	4 024	4 262	4 109	4 123	5 670	6 381	7 025	
20-24	3 541	3 839	4 086	3 957	3 988	5 505	6 218	
25-29	3 069	3 344	3 647	3 904	3 801	3 848	5 336	
30-34	2 638	2 882	3 162	3 472	3 739	3 660	3 723	
35-39	2 252	2 465	2 714	3 001	3 316	3 591	3 533	
40-44	1 910	2 091	2 310	2 564	2 854	3 173	3 456	
45-49	1 605	1 757	1 943	2 164	2 420	2 712	3 033	
50-54	1 324	1 451	1 606	1 793	2 014	2 269	2 559	
55-59	1 060	1 165	1 293	1 447	1 631	1 848	2 099	
60-64	808	891	995	1 119	1 268	1 445	1 654	
65-69	569	632	710	806	921	1 059	1 223	
70-74	356	398	451	518	600	698	816	
75-79	184	208	240	280	330	391	465	
80-84	71	83	98	117	141	172	210	
85 and over	18	23	29	36	45	58	74	
All ages	37 070	40 636	44 830	49 625	54 916	61 065	68 617	

II. CONSERVATIVE PROJECTIONS (*continued*)

7. LAOS

		(a) <i>Both sexes</i>						
		1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	213	235	261	290	326	371	424	
5-9	170	188	210	235	265	302	346	
10-14	151	164	181	203	229	259	295	
15-19	136	146	158	176	198	223	254	
20-24	120	128	139	151	169	191	217	
25-29	104	112	121	132	144	162	184	
30-34	90	96	105	114	125	138	156	
35-39	76	82	90	98	108	119	132	
40-44	64	70	76	84	93	102	113	
45-49	53	57	63	71	78	87	97	
50-54	42	46	52	58	64	72	80	
55-59	33	36	40	45	51	57	65	
60-64	25	27	29	33	38	43	49	
65-69	17	17	21	23	27	31	35	
70-74	9	11	12	13	17	19	22	
75-79	5	5	6	7	9	9	12	
80-84	2	2	2	3	3	4	5	
85 and over	0	0	0	0	1	1	2	
All ages	1 310	1 422	1 566	1 736	1 945	2 190	2 488	
<i>Broad age groups (in thousands)</i>								
0-14	534	587	652	728	820	932	1 065	
15-29	360	386	418	459	511	576	655	
30-44	230	248	271	296	326	359	401	
45-59	128	139	155	174	193	216	242	
60-74	51	55	62	69	82	93	106	
75 and over	7	7	8	10	13	14	19	
All ages	1 310	1 422	1 566	1 736	1 945	2 190	2 488	
<i>Per cent of total population</i>								
0-14	40.8	41.3	41.6	41.9	42.2	42.6	42.8	
15-29	27.5	27.1	26.7	26.4	26.3	26.3	26.3	
30-44	17.6	17.4	17.3	17.1	16.8	16.4	16.1	
45-59	9.8	9.8	9.9	10.0	9.9	9.9	9.7	
60-74	3.9	3.9	4.0	4.0	4.2	4.2	4.3	
75 and over	0.5	0.5	0.5	0.6	0.7	0.6	0.8	
All ages	100.1	100.0	100.0	100.0	100.1	100.0	100.0	



II. CONSERVATIVE PROJECTIONS (continued)

7. LAOS

(b) Detailed age groups, by sex (in thousands)							
	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	108	119	132	147	165	188	215
5-9	86	95	106	119	134	153	175
10-14	76	83	92	103	116	131	149
15-19	69	74	80	89	100	113	129
20-24	61	65	71	77	86	97	110
25-29	53	57	62	67	73	82	93
30-34	46	49	54	58	64	70	79
35-39	39	42	46	50	55	60	67
40-44	33	36	39	43	47	52	57
45-49	27	29	32	36	39	44	49
50-54	21	23	26	29	32	36	40
55-59	16	18	20	22	25	28	32
60-64	12	13	14	16	18	21	24
65-69	8	8	10	11	13	15	17
70-74	4	5	6	6	8	9	10
75-79	2	2	3	3	4	4	5
80-84	1	1	1	1	1	2	2
85 and over	0	0	0	0	0	0	1
All ages	662	719	794	877	980	1 105	1 254
FEMALES							
0-4	105	116	129	143	161	183	209
5-9	84	93	104	116	131	149	171
10-14	75	81	89	100	113	128	146
15-19	67	72	78	87	98	110	125
20-24	59	63	68	74	83	94	107
25-29	51	55	59	65	71	80	91
30-34	44	47	51	56	61	68	77
35-39	37	40	44	48	53	59	65
40-44	31	34	37	41	46	50	56
45-49	26	28	31	35	39	43	48
50-54	21	23	26	29	32	36	40
55-59	17	18	20	23	26	29	33
60-64	13	14	15	17	20	22	25
65-69	9	9	11	12	14	16	18
70-74	5	6	6	7	9	10	12
75-79	3	3	3	4	5	5	7
80-84	1	1	1	2	2	2	3
85 and over	0	0	0	0	1	1	1
All ages	648	703	772	859	965	1 085	1 234

II. CONSERVATIVE PROJECTIONS (*continued*)

8. MALAYA

	(a) <i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups, by sex (in thousands)</i>							
0-4	875	1 137	1 266	1 507	1 816	2 248	2 787
5-9	690	824	1 083	1 215	1 455	1 765	2 198
10-14	635	671	812	1 069	1 202	1 443	1 752
15-19	497	617	661	802	1 057	1 190	1 431
20-24	383	468	603	648	789	1 042	1 176
25-29	342	349	456	588	635	774	1 028
30-34	328	311	340	445	576	623	763
35-39	317	305	302	330	435	565	613
40-44	302	296	294	293	322	424	553
45-49	251	283	284	282	282	311	413
50-54	199	232	267	269	269	270	300
55-59	138	181	213	247	252	253	255
60-64	98	121	161	191	223	228	232
65-69	69	81	101	136	164	193	200
70-74	38	54	62	78	107	130	156
75-79	25	26	35	42	54	74	92
80-84	12	17	14	19	23	31	44
85 and over	12	17	11	8	10	11	15
All ages	5 211	5 990	6 965	8 169	9 671	11 575	14 008
<i>Broad age groups (in thousands)</i>							
0-14	2 200	2 632	3 161	3 791	4 473	5 456	6 737
15-29	1 222	1 434	1 720	2 038	2 481	3 006	3 635
30-44	947	912	936	1 068	1 333	1 612	1 929
45-59	588	696	764	798	803	834	968
60-74	205	256	324	405	494	551	588
75 and over	49	60	60	69	87	116	151
All ages	5 211	5 990	6 965	8 169	9 671	11 575	14 008
<i>Per cent of total population</i>							
0-14	42.2	43.9	45.4	46.4	46.3	47.1	48.1
15-29	23.5	23.9	24.7	24.9	25.7	26.0	25.9
30-44	18.2	15.2	13.4	13.1	13.8	13.9	13.8
45-59	11.3	11.6	11.0	9.8	8.3	7.2	6.9
60-74	3.9	4.3	4.7	5.0	5.1	4.8	4.2
75 and over	0.9	1.0	0.9	0.8	0.9	1.0	1.1
All ages	100.0	99.9	100.1	100.0	100.1	100.0	100.0

II. CONSERVATIVE PROJECTIONS (continued)

8. MALAYA

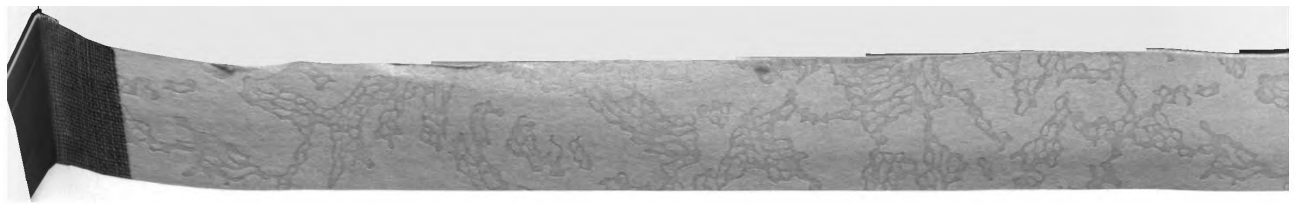
(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	445	578	642	764	922	1 143	1 419
5-9	351	419	550	615	737	895	1 116
10-14	326	342	413	543	609	731	888
15-19	254	315	337	408	537	602	724
20-24	190	235	308	330	401	529	595
25-29	165	167	229	300	323	393	521
30-34	163	145	163	223	294	317	387
35-39	170	149	140	158	218	288	311
40-44	170	157	143	136	154	212	281
45-49	149	158	150	137	130	148	206
50-54	122	136	148	141	130	124	142
55-59	82	110	124	136	131	141	116
60-64	59	73	97	110	121	117	109
65-69	39	48	60	80	93	103	101
70-74	20	30	36	46	62	72	81
75-79	12	13	19	24	31	42	50
80-84	6	8	7	10	13	17	24
85 and over	6	9	5	5	5	6	8
All ages	2 731	3 092	3 571	4 165	4 911	5 860	7 079
FEMALES							
0-4	430	559	624	743	894	1 105	1 368
5-9	339	405	533	600	718	870	1 082
10-14	309	329	399	526	593	712	864
15-19	243	302	324	394	520	588	707
20-24	193	233	295	318	388	513	581
25-29	177	182	227	288	312	381	507
30-34	165	166	177	222	282	306	376
35-39	147	156	162	172	217	277	302
40-44	132	139	151	157	168	212	272
45-49	102	125	134	145	152	163	207
50-54	77	96	119	128	139	146	158
55-59	54	71	89	111	121	132	139
60-64	39	48	64	81	102	111	123
65-69	30	33	41	56	71	90	99
70-74	18	24	26	32	45	58	75
75-79	13	13	16	18	23	32	42
80-84	6	9	7	9	10	14	20
85 and over	6	8	6	4	5	5	7
All ages	2 480	2 898	3 394	4 004	4 760	5 715	6 929

II. CONSERVATIVE PROJECTIONS (continued)

9. PHILIPPINES

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 776	4 210	4 949	5 800	6 815	8 072	9 649
5-9	2 879	3 476	3 912	4 641	5 483	6 492	7 746
10-14	2 479	2 807	3 399	3 837	4 562	5 403	6 411
15-19	2 097	2 416	2 744	3 331	3 768	4 492	5 331
20-24	1 663	2 021	2 338	2 665	3 245	3 683	4 404
25-29	1 391	1 591	1 943	2 256	2 583	3 157	3 597
30-34	1 238	1 326	1 524	1 871	2 183	2 509	3 079
35-39	1 088	1 175	1 267	1 464	1 806	2 116	2 441
40-44	895	1 026	1 116	1 210	1 406	1 742	2 050
45-49	675	833	963	1 055	1 151	1 344	1 675
50-54	513	618	769	896	988	1 085	1 276
55-59	442	457	555	698	819	911	1 007
60-64	396	377	393	484	616	729	818
65-69	292	315	304	322	402	517	620
70-74	180	208	230	226	243	308	402
75-79	94	109	129	146	146	161	208
80-84	40	45	53	66	77	78	89
85 and over	12	14	17	21	27	33	37
All ages	20 150	23 024	26 605	30 989	36 320	42 832	50 840
<i>Broad age groups (in thousands)</i>							
0-14	9 134	10 493	12 260	14 278	16 860	19 967	23 806
15-29	5 151	6 028	7 025	8 252	9 596	11 332	13 332
30-44	3 221	3 527	3 907	4 545	5 395	6 367	7 570
45-59	1 630	1 908	2 287	2 649	2 958	3 340	3 958
60-74	868	900	927	1 032	1 261	1 554	1 840
75 and over	146	168	199	233	250	272	334
All ages	20 150	23 024	26 605	30 989	36 320	42 832	50 840
<i>Per cent of total population</i>							
0-14	45.3	45.6	46.1	46.1	46.4	46.6	46.8
15-29	25.6	26.2	26.4	26.6	26.4	26.5	26.2
30-44	16.0	15.3	14.7	14.7	14.9	14.9	14.9
45-59	8.1	8.3	8.6	8.5	8.1	7.8	7.8
60-74	4.3	3.9	3.5	3.3	3.5	3.6	3.6
75 and over	0.7	0.7	0.7	0.8	0.7	0.6	0.7
All ages	100.0	100.0	100.0	100.0	100.0	100.0	100.0



II. CONSERVATIVE PROJECTIONS (*continued*)

9. PHILIPPINES

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 977	2 132	2 507	2 938	3 453	4 092	4 893
5-9	1 478	1 819	1 980	2 349	2 775	3 286	3 922
10-14	1 225	1 442	1 780	1 943	2 310	2 735	3 245
15-19	1 018	1 195	1 411	1 745	1 909	2 275	2 699
20-24	807	982	1 157	1 371	1 700	1 865	2 229
25-29	682	773	945	1 117	1 328	1 653	1 820
30-34	617	651	741	910	1 081	1 290	1 612
35-39	546	586	622	712	878	1 047	1 254
40-44	453	514	555	593	682	845	1 012
45-49	353	419	480	522	561	649	809
50-54	274	320	384	443	485	525	612
55-59	224	241	284	344	400	443	482
60-64	194	188	204	244	299	351	392
65-69	143	151	149	164	199	246	293
70-74	86	99	108	108	121	149	187
75-79	44	51	60	67	68	78	98
80-84	18	20	24	30	34	35	42
85 and over	5	6	7	9	12	14	16
All ages	10 144	11 589	13 398	15 609	18 295	21 578	25 617
FEMALES							
0-4	1 799	2 078	2 442	2 862	3 362	3 980	4 756
5-9	1 401	1 657	1 932	2 292	2 708	3 206	3 824
10-14	1 254	1 365	1 619	1 894	2 252	2 668	3 166
15-19	1 079	1 221	1 333	1 586	1 859	2 217	2 632
20-24	856	1 039	1 181	1 294	1 545	1 818	2 175
25-29	709	818	998	1 139	1 255	1 504	1 777
30-34	621	675	783	961	1 102	1 219	1 467
35-39	542	589	645	752	928	1 069	1 187
40-44	442	512	561	617	724	897	1 038
45-49	322	414	483	533	590	695	866
50-54	239	298	385	453	503	560	664
55-59	218	216	271	354	419	468	525
60-64	202	189	189	240	317	378	426
65-69	149	164	155	158	203	271	327
70-74	94	109	122	118	122	159	215
75-79	50	58	69	79	78	83	110
80-84	22	25	29	36	43	43	47
85 and over	7	8	10	12	15	19	21
All ages	10 006	11 435	13 207	15 380	18 025	21 254	25 223

II. CONSERVATIVE PROJECTIONS (continued)

10. PORTUGUESE TIMOR

(a) Both sexes							
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	71	77	85	94	105	118	134
5-9	57	61	67	75	85	96	109
10-14	51	55	59	65	73	83	93
15-19	45	49	53	57	63	71	81
20-24	41	43	47	50	55	61	69
25-29	35	37	41	43	47	53	59
30-34	31	33	35	38	41	45	50
35-39	26	27	30	33	35	39	43
40-44	22	23	25	28	30	33	37
45-49	18	19	21	23	26	28	32
50-54	14	16	16	18	20	24	26
55-59	11	12	13	14	16	18	20
60-64	8	9	10	10	12	14	16
65-69	6	6	6	7	8	10	11
70-74	3	4	4	4	5	6	7
75-79	2	2	2	2	2	3	4
80-84	0	0	0	0	1	2	2
85 and over	0	0	0	0	0	0	0
All ages	441	473	514	561	624	704	793
<i>Broad age groups (in thousands)</i>							
0-14	179	193	211	234	263	297	336
15-29	121	129	141	150	165	185	209
30-44	79	83	90	99	106	117	130
45-59	43	47	50	55	62	70	78
60-74	17	19	20	21	25	30	34
75 and over	2	2	2	2	3	5	6
All ages	441	473	514	561	624	704	793
<i>Per cent of total population</i>							
0-14	40.6	40.8	41.1	41.7	42.1	42.2	42.4
15-29	27.4	27.3	27.4	26.7	26.4	26.3	26.4
30-44	17.9	17.5	17.5	17.6	17.0	16.6	16.4
45-59	9.8	9.9	9.7	9.8	9.9	9.9	9.8
60-74	3.9	4.0	3.9	3.7	4.0	4.3	4.3
75 and over	0.5	0.4	0.4	0.4	0.5	0.7	0.8
All ages	100.1	99.9	100.0	99.9	99.9	100.0	100.1

II. CONSERVATIVE PROJECTIONS (continued)

10. PORTUGUESE TIMOR

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	36	39	43	48	53	60	68
5-9	29	31	34	38	43	49	55
10-14	26	28	30	33	37	42	47
15-19	23	25	27	29	32	36	41
20-24	21	22	24	25	28	31	35
25-29	18	19	21	22	24	27	30
30-34	16	17	18	19	21	23	25
35-39	13	14	15	17	18	20	22
40-44	11	12	13	14	15	17	19
45-49	9	10	11	12	13	14	16
50-54	7	8	8	9	10	12	13
55-59	5	6	6	7	8	9	10
60-64	4	4	5	5	6	7	8
65-69	3	3	3	3	4	5	5
70-74	1	2	2	2	2	3	3
75-79	1	1	1	1	1	1	2
80-84	0	0	0	0	0	1	1
85 and over	0	0	0	0	0	0	0
All ages	223	241	261	284	315	357	400
FEMALES							
0-4	35	38	42	46	52	58	66
5-9	28	30	33	37	42	47	54
10-14	25	27	29	32	36	41	46
15-19	22	24	26	28	31	35	40
20-24	20	21	23	25	27	30	34
25-29	17	18	20	21	23	26	29
30-34	15	16	17	19	20	22	25
35-39	13	13	15	16	17	19	21
40-44	11	11	12	14	15	16	18
45-49	9	9	10	11	13	14	16
50-54	7	8	8	9	10	12	13
55-59	6	6	7	7	8	9	10
60-64	4	5	5	5	6	7	8
65-69	3	3	3	4	4	5	6
70-74	2	2	2	2	3	3	4
75-79	1	1	1	1	1	2	2
80-84	0	0	0	0	1	1	1
85 and over	0	0	0	0	0	0	0
All ages	218	232	253	277	309	347	393

II. CONSERVATIVE PROJECTIONS (continued)

11. SINGAPORE

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	175	257	291	336	404	520	674
5-9	121	173	249	285	330	399	516
10-14	112	123	172	249	284	329	399
15-19	99	117	123	172	248	284	329
20-24	89	107	115	122	170	247	282
25-29	84	100	107	115	121	170	246
30-34	79	91	98	105	113	121	168
35-39	76	83	90	96	104	112	119
40-44	69	77	81	88	95	102	110
45-49	54	67	74	78	85	92	99
50-54	39	51	64	71	74	82	89
55-59	27	36	48	59	66	70	77
60-64	18	24	32	42	53	60	64
65-69	11	16	21	27	36	46	52
70-74	5	9	11	16	21	29	38
75-79	3	3	6	8	11	15	21
80-84	1	1	2	3	5	7	9
85 and over	0	1	1	1	1	3	3
All ages	1 062	1 336	1 585	1 873	2 221	2 688	3 295
<i>Broad age groups (in thousands)</i>							
0-14	408	553	712	870	1 018	1 248	1 589
15-29	272	324	345	409	539	701	857
30-44	224	251	269	289	312	335	397
45-59	120	154	186	208	225	244	265
60-74	34	49	64	85	110	135	154
75 and over	4	5	9	12	17	25	33
All ages	1 062	1 336	1 585	1 873	2 221	2 688	3 295
<i>Per cent of total population</i>							
0-14	38.4	41.4	44.9	46.4	45.8	46.4	48.2
15-29	25.6	24.3	21.8	21.8	24.3	26.1	26.0
30-44	21.1	18.8	17.0	15.4	14.0	12.5	12.0
45-59	11.3	11.5	11.7	11.1	10.1	9.1	8.0
60-74	3.2	3.7	4.0	4.5	5.0	5.0	4.7
75 and over	0.4	0.4	0.6	0.6	0.8	0.9	1.0
All ages	100.0	100.1	100.0	99.8	100.0	100.0	99.9

II. CONSERVATIVE PROJECTIONS (continued)

11. SINGAPORE

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	90	131	148	171	206	265	344
5-9	62	89	127	145	168	203	263
10-14	58	63	88	127	144	167	203
15-19	53	61	63	88	126	144	167
20-24	50	59	60	63	87	126	143
25-29	49	58	59	60	62	87	125
30-34	47	55	57	58	59	62	86
35-39	45	50	54	56	57	58	61
40-44	41	46	49	53	55	56	57
45-49	32	40	44	47	51	53	54
50-54	23	30	38	42	44	49	51
55-59	15	21	28	34	38	41	45
60-64	9	13	18	24	30	34	37
65-69	5	8	11	15	20	25	29
70-74	2	4	5	8	11	15	20
75-79	1	1	2	3	5	7	10
80-84	0	0	1	1	2	3	4
85 and over	0	0	0	0	0	1	1
All ages	582	729	852	995	1 165	1 396	1 700
FEMALES							
0-4	85	126	143	165	198	255	330
5-9	59	84	122	140	162	196	253
10-14	54	60	84	122	140	162	196
15-19	46	56	60	84	122	140	162
20-24	39	48	55	59	83	121	139
25-29	35	42	48	55	59	83	121
30-34	32	36	41	47	54	59	82
35-39	31	33	36	40	47	54	58
40-44	28	31	32	35	40	46	53
45-49	22	27	30	31	34	39	45
50-54	16	21	26	29	30	33	38
55-59	12	15	20	25	28	29	32
60-64	9	11	14	18	23	26	27
65-69	6	8	10	12	16	21	23
70-74	3	5	6	8	10	14	18
75-79	2	2	4	5	6	8	11
80-84	1	1	1	2	3	4	5
85 and over	0	1	1	1	1	2	2
All ages	480	607	733	878	1 056	1 292	1 595

II. CONSERVATIVE PROJECTIONS (continued)

12. THAILAND

(a) Both sexes							
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 187	3 666	4 233	4 813	5 446	6 272	7 377
5-9	2 484	2 901	3 372	3 934	4 514	5 149	5 976
10-14	2 318	2 413	2 828	3 297	3 857	4 438	5 075
15-19	2 069	2 251	2 352	2 765	3 231	3 790	4 368
20-24	1 707	1 986	2 170	2 276	2 684	3 149	3 704
25-29	1 357	1 616	1 899	2 085	2 197	2 601	3 064
30-34	1 148	1 278	1 532	1 820	2 009	2 125	2 527
35-39	1 031	1 076	1 205	1 455	1 747	1 938	2 060
40-44	877	955	1 006	1 137	1 381	1 678	1 870
45-49	719	801	882	937	1 067	1 305	1 605
50-54	563	643	724	806	865	993	1 222
55-59	417	488	565	644	723	784	909
60-64	303	344	410	481	555	632	692
65-69	206	232	269	327	389	456	526
70-74	129	141	162	192	239	290	345
75-79	67	74	83	99	120	153	190
80-84	30	30	34	40	49	61	81
85 and over	17	12	11	12	15	20	26
All ages	18 629	20 907	23 737	27 120	31 088	35 834	41 617
<i>Broad age groups (in thousands)</i>							
0-14	7 989	8 980	10 433	12 044	13 817	15 859	18 428
15-29	5 133	5 853	6 421	7 126	8 112	9 540	11 136
30-44	3 056	3 309	3 743	4 412	5 137	5 741	6 457
45-59	1 699	1 932	2 171	2 387	2 655	3 082	3 736
60-74	638	717	841	1 000	1 183	1 378	1 563
75 and over	114	116	128	151	184	234	297
All ages	18 629	20 907	23 737	27 120	31 088	35 834	41 617
<i>Per cent of total population</i>							
0-14	42.9	43.0	44.0	44.4	44.4	44.3	44.3
15-29	27.6	28.0	27.1	26.3	26.1	26.6	26.8
30-44	16.4	15.8	15.8	16.3	16.5	16.0	15.5
45-59	9.1	9.2	9.1	8.8	8.5	8.6	9.0
60-74	3.4	3.4	3.5	3.7	3.8	3.8	3.8
75 and over	0.6	0.6	0.5	0.6	0.6	0.7	0.7
All ages	100.0	100.0	100.0	100.1	99.9	100.0	100.1

II. CONSERVATIVE PROJECTIONS (continued)

12. THAILAND

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 653	1 857	2 144	2 438	2 759	3 178	3 740
5-9	1 251	1 504	1 706	1 991	2 285	2 606	3 025
10-14	1 173	1 217	1 467	1 669	1 953	2 247	2 569
15-19	1 039	1 141	1 187	1 436	1 637	1 920	2 212
30-24	840	999	1 101	1 150	1 394	1 595	1 876
25-29	661	792	956	1 058	1 110	1 351	1 551
30-34	566	620	748	917	1 020	1 073	1 312
35-39	520	527	581	706	880	983	1 040
40-44	444	476	488	543	664	843	947
45-49	359	399	433	448	503	620	803
50-54	277	314	353	388	406	460	572
55-59	204	233	268	306	340	360	413
60-64	149	163	189	221	256	289	309
65-69	100	110	122	145	172	203	232
70-74	61	65	73	83	101	123	147
75-79	29	33	36	42	49	61	76
80-84	12	12	14	16	19	23	30
85 and over	6	4	4	4	5	7	9
All ages	9 344	10 466	11 870	13 561	15 553	17 942	20 863
FEMALES							
0-4	1 534	1 809	2 089	2 375	2 687	3 094	3 637
5-9	1 233	1 397	1 666	1 943	2 229	2 543	2 951
10-14	1 145	1 196	1 361	1 628	1 904	2 191	2 506
15-19	1 030	1 110	1 165	1 329	1 594	1 870	2 156
20-24	867	987	1 069	1 126	1 290	1 554	1 828
25-29	696	824	943	1 027	1 087	1 250	1 513
30-34	582	658	784	903	989	1 052	1 215
35-39	511	549	624	749	867	955	1 020
40-44	433	479	518	594	717	835	923
45-49	360	402	449	489	564	685	802
50-54	286	329	371	418	459	533	650
55-59	213	255	297	338	383	424	496
60-64	154	181	221	260	299	343	383
65-69	106	122	147	182	217	253	294
70-74	68	76	89	109	138	167	198
75-79	38	41	47	57	71	92	114
80-84	18	18	20	24	30	38	51
85 and over	11	8	7	8	10	13	17
All ages	9 285	10 441	11 867	13 559	15 535	17 892	20 754

II. CONSERVATIVE PROJECTIONS (continued)

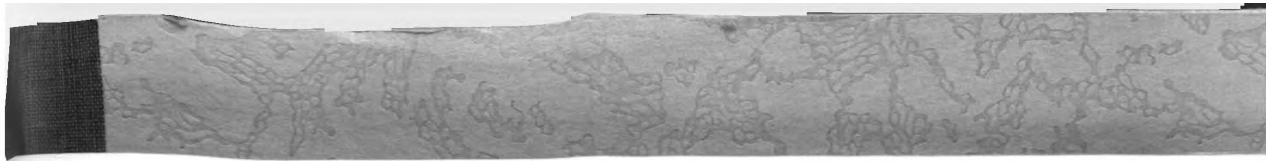
13. VIET-NAM

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 180	2 968	4 812	5 306	5 632	5 822	6 439
5-9	3 272	2 820	2 731	4 472	4 975	5 325	5 547
10-14	3 057	3 154	2 749	2 670	4 385	4 891	5 247
15-19	2 748	2 950	3 073	2 687	2 617	4 307	4 816
20-24	2 426	2 589	2 843	2 974	2 610	2 550	4 210
25-29	2 120	2 255	2 473	2 732	2 871	2 529	2 481
30-34	1 845	1 952	2 150	2 370	2 631	2 777	2 457
35-39	1 595	1 677	1 852	2 053	2 276	2 540	2 692
40-44	1 368	1 426	1 581	1 759	1 960	2 185	2 450
45-49	1 158	1 196	1 329	1 485	1 663	1 865	2 091
50-54	960	984	1 094	1 226	1 381	1 557	1 758
55-59	772	787	876	984	1 113	1 264	1 436
60-64	592	600	670	756	859	982	1 125
65-69	422	436	477	542	621	714	826
70-74	268	282	312	348	402	468	547
75-79	142	149	171	194	222	262	312
80-84	57	60	71	83	99	117	141
85 and over	17	17	22	27	34	42	51
All ages	25 999	26 302	29 286	32 668	36 351	40 197	44 626
<i>Broad age groups (in thousands)</i>							
0-14	9 509	8 942	10 292	12 448	14 992	16 038	17 233
15-29	7 294	7 794	8 389	8 393	8 098	9 386	11 507
30-44	4 808	5 055	5 583	6 182	6 867	7 502	7 599
45-59	2 890	2 967	3 299	3 695	4 157	4 686	5 285
60-74	1 282	1 318	1 459	1 646	1 882	2 164	2 498
75 and over	216	226	264	304	355	421	504
All ages	25 999	26 302	29 286	32 668	36 351	40 197	44 626
<i>Per cent of total population</i>							
0-14	36.6	34.0	35.1	38.1	41.2	39.9	38.6
15-29	28.1	29.6	28.6	25.7	22.3	23.4	25.8
30-44	18.5	19.2	19.1	18.9	18.9	18.7	17.0
45-59	11.1	11.3	11.3	11.3	11.4	11.7	11.8
60-74	4.9	5.0	5.0	5.0	5.2	5.4	5.6
75 and over	0.8	0.9	0.9	0.9	1.0	1.0	1.1
All ages	100.0	100.0	100.0	99.9	100.0	100.1	99.9

II. CONSERVATIVE PROJECTIONS (continued)

13. VIET-NAM

(b) Detailed age groups, by sex (in thousands)							
	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 607	1 502	2 437	2 688	2 853	2 950	3 264
5-9	1 658	1 425	1 381	2 263	2 518	2 695	2 808
10-14	1 550	1 600	1 390	1 351	2 220	2 476	2 656
15-19	1 396	1 499	1 561	1 360	1 325	2 182	2 439
20-24	1 235	1 305	1 446	1 511	1 321	1 291	2 132
25-29	1 081	1 137	1 249	1 390	1 459	1 280	1 255
30-34	943	983	1 085	1 198	1 339	1 411	1 243
35-39	816	841	933	1 036	1 150	1 292	1 367
40-44	697	709	792	884	987	1 102	1 244
45-49	585	585	657	740	832	935	1 050
50-54	479	472	530	601	683	773	875
55-59	380	369	414	471	539	618	705
60-64	286	275	309	352	404	468	542
65-69	200	201	214	245	283	329	386
70-74	124	130	140	152	177	208	246
75-79	64	67	77	85	94	112	135
80-84	25	26	31	36	42	48	58
85 and over	7	7	9	11	14	17	20
All ages	13 133	13 133	14 655	16 374	18 240	20 187	22 425
FEMALES							
0-4	1 573	1 466	2 375	2 618	2 779	2 872	3 175
5-9	1 614	1 395	1 350	2 209	2 457	2 630	2 739
10-14	1 507	1 554	1 359	1 319	2 165	2 415	2 591
15-19	1 352	1 451	1 512	1 327	1 292	2 125	2 377
20-24	1 191	1 284	1 397	1 463	1 289	1 259	2 078
25-29	1 039	1 118	1 224	1 342	1 412	1 249	1 226
30-34	902	969	1 065	1 172	1 292	1 366	1 214
35-39	779	836	919	1 017	1 126	1 248	1 325
40-44	671	717	789	875	973	1 083	1 206
45-49	573	611	672	745	831	930	1 041
50-54	481	512	564	625	698	784	883
55-59	392	418	462	513	574	646	731
60-64	306	325	361	404	455	514	583
65-69	222	235	263	297	338	385	440
70-74	144	152	172	196	225	260	301
75-79	78	82	94	109	128	150	177
80-84	32	34	40	47	57	69	83
85 and over	10	10	13	16	20	25	31
All ages	12 866	13 169	14 631	16 294	18 111	20 010	22 201



Annex III

DETAILED RESULTS OF POPULATION PROJECTIONS IN WHICH LOW AND RAPIDLY DECLINING MORTALITY IS ASSUMED

EXPLANATORY NOTE

The projections presented here reflect a mortality trend suggested by recent observations which, however, are still unreliable as has been noted in Section II of the text. When significance is given to these observations and their possible implications for the future, the low-mortality projections provide a suitable alternative to the conservative projections tabulated in Annex II.

There seemed to be no reasons for assuming alternative mortality trends for Ceylon, China (Taiwan) and Singapore: even on the conservative projections, current and future

mortality levels are relatively quite low in their instances.

In the case of Burma, the assumption of low mortality is inconsistent with the 1950 estimate of total population used for the conservative projection. A larger 1950 estimate had, therefore, to be used. The two projections for Burma are not comparable, but a special alternative is discussed in Section IV of the text.

For other countries and areas of South-East Asia, the projections based on an assumption of low mortality are comparable with those made on the conservative assumptions. The two sets of projections are, therefore, presented in the same form.

III. LOW-MORTALITY PROJECTIONS

1. BRITISH BORNEO (Brunei, North Borneo, and Sarawak)

	<i>(a) Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	151	172	199	231	270	316	378
5-9	127	133	157	184	219	257	306
10-14	113	123	129	154	182	215	255
15-19	96	109	119	125	150	179	213
20-24	83	91	105	115	122	148	176
25-29	75	77	87	101	111	119	144
30-34	66	69	73	83	97	109	116
35-39	60	62	65	69	79	94	105
40-44	51	55	58	61	67	76	91
45-49	41	46	51	54	58	64	74
50-54	32	36	41	46	50	55	61
55-59	24	27	31	38	43	46	51
60-64	17	19	23	27	33	38	42
65-69	12	13	15	18	22	28	33
70-74	6	8	9	11	13	17	22
75-79	3	4	4	6	7	9	12
80-84	2	2	2	2	2	4	6
85 and over	0	0	0	0	0	2	2
All ages	959	1 046	1 168	1 325	1 525	1 776	2 087
<i>Broad age groups (in thousands)</i>							
0-14	391	428	485	569	671	788	939
15-29	254	277	311	341	383	446	533
30-44	177	186	196	213	243	279	312
45-59	97	109	123	138	151	165	186
60-74	35	40	47	56	68	83	97
75 and over	5	6	6	8	9	15	20
All ages	959	1 046	1 168	1 325	1 525	1 776	2 087
<i>Per cent of total population</i>							
0-14	40.8	40.9	41.5	42.9	44.0	44.4	45.0
15-29	26.5	26.5	26.5	25.7	25.1	25.1	25.5
30-44	18.5	17.8	16.8	16.1	15.9	15.7	14.9
45-59	10.1	10.4	10.5	10.4	9.9	9.3	8.9
60-74	3.6	3.8	4.0	4.2	4.5	4.7	4.6
75 and over	0.5	0.6	0.5	0.6	0.6	0.8	1.0
All ages	100.0	100.0	99.9	99.9	100.1	100.0	99.9

III. LOW-MORTALITY PROJECTIONS (*continued*)

1. BRITISH BORNEO (Brunei, North Borneo, and Sarawak)

(b) Detailed age groups, by sex (in thousands)							
	1950	1955	1960	1965	1970	1975	1980
Males							
0-4	77	87	101	117	137	160	192
5-9	65	68	79	93	111	130	155
10-14	58	63	66	78	92	109	129
15-19	49	56	61	64	76	91	108
20-24	43	47	54	59	62	75	89
25-29	39	40	45	52	57	61	73
30-34	35	36	38	43	50	56	59
35-39	33	33	34	36	41	48	54
40-44	29	30	31	32	35	39	47
45-49	23	26	28	29	30	33	38
50-54	18	20	23	25	26	28	31
55-59	13	15	17	21	23	24	26
60-64	9	10	13	15	18	20	22
65-69	6	7	8	10	12	15	17
70-74	3	4	5	6	7	9	12
75-79	1	2	2	3	4	5	6
80-84	1	1	1	1	1	2	3
85 and over	0	0	0	0	0	1	1
All ages	502	545	606	684	782	906	1 062
Females							
0-4	74	85	98	114	133	156	186
5-9	62	65	78	91	108	127	151
10-14	55	60	63	76	90	106	126
15-19	47	53	58	61	74	88	105
20-24	40	44	51	56	60	73	87
25-29	36	37	42	49	54	58	71
30-34	31	33	35	40	47	53	57
35-39	27	29	31	33	38	46	51
40-44	22	25	27	29	32	37	44
45-49	18	20	23	25	28	31	36
50-54	14	16	18	21	24	27	30
55-59	11	12	14	17	20	22	25
60-64	8	9	10	12	15	18	20
65-69	6	6	7	8	10	13	16
70-74	3	4	4	5	6	8	10
75-79	2	2	2	3	3	4	6
80-84	1	1	1	1	1	2	3
85 and over	0	0	0	0	0	1	1
All ages	457	501	562	641	743	870	1 025

2. BURMA

III. LOW-MORTALITY PROJECTIONS (*continued*)

	(a) <i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (rounded to nearest thousand)</i>							
0-4	3 118	3 558	4 128	4 816	5 651	6 740	7 982
5-9	2 572	2 869	3 336	3 932	4 652	5 525	6 625
10-14	2 279	2 507	2 814	3 287	3 891	4 618	5 493
15-19	2 011	2 221	2 457	2 770	3 249	3 860	4 588
20-24	1 709	1 938	2 158	2 401	2 724	3 210	3 822
25-29	1 447	1 627	1 871	2 099	2 353	2 685	3 173
30-34	1 294	1 372	1 560	1 818	2 055	2 318	2 651
35-39	1 055	1 221	1 310	1 506	1 776	2 020	2 285
40-44	1 020	988	1 159	1 257	1 459	1 739	1 985
45-49	884	942	927	1 101	1 208	1 413	1 697
50-54	740	799	869	869	1 044	1 156	1 360
55-59	512	648	716	795	807	981	1 094
60-64	396	430	559	631	715	735	902
65-69	250	309	347	463	537	621	647
70-74	165	176	225	262	360	430	505
75-79	82	97	109	147	178	254	309
80-84	35	37	48	58	82	104	151
85 and over	8	11	14	20	26	38	50
All ages	19 577	21 750	24 607	28 232	32 767	38 447	45 319
<i>Broad age groups</i>							
0-14	7 969	8 934	10 278	12 035	14 194	16 883	20 100
15-29	5 167	5 786	6 486	7 270	8 326	9 755	11 583
30-44	3 369	3 581	4 029	4 581	5 290	6 077	6 921
45-59	2 136	2 389	2 512	2 765	3 059	3 550	4 151
60-74	811	915	1 131	1 356	1 612	1 786	2 054
75 and over	125	145	171	225	286	396	510
All ages	19 577	21 750	24 607	28 232	32 767	38 447	45 319
<i>Per cent of total population</i>							
0-14	40.7	41.1	41.8	42.6	43.3	43.9	44.4
15-29	26.4	26.6	26.4	25.8	25.4	25.4	25.6
30-44	17.2	16.5	16.4	16.2	16.1	15.8	15.3
45-59	10.9	11.0	10.2	9.8	9.3	9.2	9.2
60-74	4.1	4.2	4.6	4.8	4.9	4.6	4.5
75 and over	0.6	0.7	0.7	0.8	0.9	1.0	1.1
All ages	99.9	100.1	100.1	100.0	99.9	99.9	100.1

III. LOW-MORTALITY PROJECTIONS (continued)

2. BURMA

(b) Detailed age groups, by sex (rounded to nearest thousand)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 579	1 802	2 091	2 441	2 869	3 431	4 068
5-9	1 301	1 452	1 688	1 990	2 356	2 802	3 368
10-14	1 153	1 269	1 425	1 664	1 969	2 338	2 784
15-19	1 018	1 125	1 245	1 403	1 644	1 952	2 321
20-24	865	982	1 093	1 216	1 379	1 623	1 931
25-29	730	820	948	1 063	1 191	1 358	1 602
30-34	659	689	783	921	1 040	1 172	1 339
35-39	517	618	654	752	899	1 021	1 154
40-44	500	479	582	623	724	879	1 002
45-49	457	454	444	547	594	696	855
50-54	387	405	412	410	512	562	665
55-59	263	330	355	369	374	474	526
60-64	195	214	277	305	324	333	428
65-69	118	146	167	222	252	273	286
70-74	74	79	102	121	166	194	215
75-79	36	41	46	63	78	112	134
80-84	15	15	19	23	33	43	63
85 and over	3	4	5	7	9	14	19
All ages	9 870	10 924	12 336	14 140	16 413	19 277	22 760
FEMALES							
0-4	1 539	1 756	2 037	2 375	2 782	3 309	3 914
5-9	1 217	1 417	1 648	1 942	2 296	2 723	3 257
10-14	1 126	1 238	1 389	1 623	1 922	2 280	2 709
15-19	993	1 096	1 212	1 367	1 605	1 908	2 267
20-24	844	956	1 065	1 185	1 345	1 587	1 891
25-29	717	807	923	1 036	1 162	1 327	1 571
30-34	635	683	777	897	1 015	1 146	1 312
35-39	538	603	656	754	877	999	1 131
40-44	520	509	577	634	735	860	983
45-49	427	488	483	554	614	717	842
50-54	353	394	457	459	532	594	695
55-59	249	318	361	426	433	507	568
60-64	201	216	282	326	391	402	474
65-69	132	163	180	241	285	348	361
70-74	91	97	123	141	194	236	290
75-79	46	56	63	84	100	142	175
80-84	20	22	29	35	49	61	88
85 and over	5	7	9	13	17	24	31
All ages	9 707	10 826	12 271	14 092	16 354	19 170	22 559

LOW-MORTALITY PROJECTIONS (continued)

3. CAMBODIA

(a) Both sexes							
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (rounded to nearest thousand)</i>							
0-4	665	782	926	1 081	1 260	1 514	1 828
5-9	518	611	733	882	1 043	1 232	1 489
10-14	483	504	600	723	873	1 035	1 225
15-19	432	471	495	590	715	866	1 028
20-24	356	416	457	484	580	706	857
25-29	283	339	401	445	474	572	697
30-34	239	268	324	390	435	467	565
35-39	215	226	257	313	381	428	460
40-44	183	201	214	246	303	373	420
45-49	150	169	189	204	236	294	364
50-54	118	135	155	177	194	226	284
55-59	87	103	122	142	164	182	214
60-64	63	73	89	107	128	150	168
65-69	43	49	59	74	91	110	131
70-74	27	30	36	45	58	73	90
75-79	14	16	19	23	31	41	53
80-84	6	7	8	10	13	18	24
85 and over	3	3	3	3	5	6	8
All ages	3 885	4 403	5 087	5 939	6 984	8 293	9 905
<i>Broad age groups</i>							
0-14	1 666	1 897	2 259	2 686	3 176	3 781	4 542
15-29	1 071	1 226	1 353	1 519	1 769	2 144	2 582
30-44	637	695	795	949	1 119	1 268	1 445
45-49	355	407	466	523	594	702	862
60-74	133	152	184	226	277	333	389
75 and over	23	26	30	36	49	65	85
All ages	3 885	4 403	5 087	5 939	6 984	8 293	9 905
<i>Per cent of total population</i>							
0-14	42.9	43.1	44.4	45.2	45.5	45.6	45.9
15-29	27.6	27.8	26.6	25.6	25.3	25.9	26.1
30-44	16.4	15.8	15.6	16.0	16.0	15.3	14.6
45-59	9.1	9.2	9.2	8.8	8.5	8.5	8.7
60-74	3.4	3.5	3.6	3.8	4.0	4.0	3.9
75 and over	0.6	0.6	0.6	0.6	0.7	0.8	0.9
All ages	100.0	100.0	100.0	100.0	100.0	100.1	100.1

III. LOW-MORTALITY PROJECTIONS (continued)

3. CAMBODIA

(b) Detailed age groups, by sex (rounded to nearest thousand)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	345	396	469	548	640	771	932
5-9	261	317	371	446	528	625	757
10-14	244	254	311	366	442	524	621
15-19	217	239	250	306	362	438	520
20-24	175	209	232	244	301	357	433
25-29	138	166	202	225	239	296	352
30-34	118	130	158	196	220	235	292
35-39	108	111	124	152	191	216	231
40-44	93	100	104	118	146	187	212
45-49	75	84	93	98	112	141	182
50-54	58	66	76	86	92	106	135
55-59	43	49	58	68	78	85	99
60-64	31	35	41	50	60	70	77
65-69	21	23	27	33	41	50	60
70-74	13	14	16	20	25	32	40
75-79	6	7	8	10	13	17	22
80-84	2	3	3	4	5	7	9
85 and over	1	1	1	1	2	2	3
All ages	1 949	2 204	2 544	2 971	3 497	4 159	4 977
FEMALES							
0-4	320	386	457	533	620	743	896
5-9	257	294	362	436	515	607	732
10-14	239	250	289	357	431	511	604
15-19	215	232	245	284	353	428	508
20-24	181	207	225	240	279	349	424
25-29	145	173	199	220	235	276	345
30-34	121	138	166	194	215	232	273
35-39	107	115	133	161	190	212	229
40-44	90	101	110	128	157	186	208
45-49	75	85	96	106	124	153	182
50-54	60	69	79	91	102	120	149
55-59	44	54	64	74	86	97	115
60-64	32	38	48	57	68	80	91
65-69	22	26	32	41	50	60	71
70-74	14	16	20	25	33	41	50
75-79	8	9	11	13	18	24	31
80-84	4	4	5	6	8	11	15
85 and over	2	2	2	2	3	4	5
All ages	1 936	2 199	2 543	2 968	3 487	4 134	4 928

III. LOW-MORTALITY PROJECTIONS (continued)

6. INDONESIA

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	9 812	13 592	15 441	17 184	18 852	21 773	26 497
5-9	8 863	8 930	12 631	14 598	16 489	18 323	21 405
10-14	8 946	8 612	8 732	12 418	14 415	16 343	18 217
15-19	8 181	8 691	8 416	8 578	12 252	14 275	16 236
20-24	7 218	7 854	8 409	8 200	8 409	12 075	14 138
25-29	6 275	6 868	7 548	8 149	8 007	8 265	11 936
30-34	5 412	5 946	6 583	7 302	7 947	7 862	8 162
35-39	4 628	5 103	5 679	6 352	7 105	7 789	7 751
40-44	3 912	4 328	4 844	5 452	6 155	6 939	7 653
45-49	3 254	3 612	4 064	4 607	5 240	5 966	6 770
50-54	2 646	2 946	3 332	3 806	4 367	5 016	5 755
55-59	2 081	2 325	2 646	3 048	3 533	4 102	4 757
60-64	1 556	1 747	2 005	2 333	2 736	3 218	3 784
65-69	1 075	1 216	1 413	1 666	1 983	2 371	2 835
70-74	657	752	887	1 066	1 296	1 583	1 935
75-79	331	386	468	577	722	910	1 145
80-84	125	151	190	244	318	418	547
85 and over	30	40	56	76	107	148	205
All ages	75 002	83 099	93 344	105 656	119 933	137 376	159 728
<i>Broad age groups (in thousands)</i>							
0-14	27 621	31 134	36 804	44 200	49 756	56 439	66 119
15-29	21 674	23 413	24 373	24 927	28 668	34 615	42 310
30-44	13 952	15 377	17 106	19 106	21 207	22 590	23 566
45-59	7 981	8 883	10 042	11 461	13 140	15 084	17 282
60-74	3 288	3 715	4 305	5 065	6 015	7 172	8 554
75 and over	486	577	714	897	1 147	1 476	1 897
All ages	75 002	83 099	93 344	105 656	119 933	137 376	159 728
<i>Per cent of total population</i>							
0-14	36.8	37.5	39.4	41.8	41.5	41.1	41.4
15-29	28.9	28.2	26.1	23.6	23.9	25.2	26.5
30-44	18.6	18.5	18.3	18.1	17.7	16.4	14.8
45-59	10.6	10.7	10.8	10.8	11.0	11.0	10.8
60-74	4.4	4.5	4.6	4.8	5.0	5.2	5.4
75 and over	0.6	0.7	0.8	0.8	1.0	1.1	1.2
All ages	99.9	100.1	100.0	99.9	100.1	100.0	100.1

III. LOW-MORTALITY PROJECTIONS (continued)

6. INDONESIA

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	4 961	6 884	7 822	8 707	9 560	11 070	13 504
5-9	4 483	4 513	6 393	7 388	8 345	9 281	10 869
10-14	4 536	4 360	4 416	6 287	7 296	8 269	9 222
15-19	4 157	4 413	4 265	4 340	6 204	7 223	8 209
20-24	3 677	3 996	4 272	4 155	4 252	6 109	7 146
25-29	3 206	3 504	3 842	4 139	4 054	4 175	6 032
30-34	2 774	3 044	3 361	3 717	4 034	3 978	4 119
35-39	2 376	2 618	2 907	3 242	3 614	3 950	3 918
40-44	2 002	2 218	2 480	2 785	3 125	3 523	3 875
45-49	1 649	1 838	2 072	2 348	2 666	3 028	3 427
50-54	1 322	1 479	1 682	1 926	2 211	2 537	2 905
55-59	1 021	1 145	1 312	1 521	1 770	2 058	2 385
60-64	748	842	972	1 139	1 346	1 590	1 872
65-69	506	573	668	792	950	1 144	1 374
70-74	301	345	408	492	601	740	911
75-79	147	172	209	258	324	410	519
80-84	54	65	82	105	137	181	237
85 and over	12	16	23	31	44	61	84
All ages	37 932	42 025	47 186	53 372	60 543	69 327	80 608
FEMALES							
0-4	4 851	6 708	7 619	8 477	9 292	10 703	12 993
5-9	4 380	4 417	6 238	7 210	8 144	9 042	10 536
10-14	4 410	4 252	4 316	6 131	7 119	8 074	8 995
15-19	4 024	4 278	4 151	4 238	6 048	7 052	8 027
20-24	3 541	3 858	4 137	4 045	4 157	5 966	6 992
25-29	3 069	3 364	3 706	4 010	3 953	4 090	5 904
30-34	2 638	2 902	3 222	3 585	3 913	3 884	4 043
35-39	2 252	2 485	2 772	3 110	3 491	3 839	3 833
40-44	1 910	2 110	2 364	2 667	3 020	3 416	3 778
45-49	1 605	1 774	1 992	2 259	2 574	2 938	3 343
50-54	1 324	1 467	1 650	1 880	2 156	2 479	2 850
55-59	1 060	1 180	1 334	1 527	1 763	2 044	2 372
60-64	808	905	1 033	1 194	1 390	1 628	1 912
65-69	569	643	745	874	1 033	1 227	1 461
70-74	356	407	479	574	695	843	1 024
75-79	184	214	259	319	398	500	626
80-84	71	86	108	139	181	237	310
85 and over	18	24	33	45	63	87	121
All ages	37 070	41 074	46 158	52 284	59 390	68 049	79 120

III. LOW-MORTALITY PROJECTIONS (continued)

7. LAOS

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	213	241	275	313	363	428	517
5-9	170	189	220	255	296	349	416
10-14	151	164	184	215	251	293	346
15-19	136	146	160	180	211	247	290
20-24	120	128	140	154	175	207	244
25-29	104	112	122	134	150	170	204
30-34	90	98	106	118	130	146	168
35-39	76	84	92	102	114	124	143
40-44	64	70	78	87	98	110	124
45-49	53	59	65	73	83	94	107
50-54	42	47	53	60	69	79	89
55-59	33	36	41	48	54	64	74
60-64	25	27	31	35	41	49	58
65-69	17	19	21	25	29	35	43
70-74	9	11	13	15	19	23	28
75-79	5	5	7	8	9	13	16
80-84	2	2	2	3	4	5	7
85 and over	0	0	0	1	2	2	2
All ages	1 310	1 438	1 610	1 826	2 098	2 440	2 876
<i>Broad age groups (in thousands)</i>							
0-14	534	594	679	783	910	1 070	1 279
15-29	360	386	422	468	536	624	738
30-44	230	252	276	307	342	382	435
45-59	128	142	159	181	206	237	270
60-74	51	57	65	75	89	107	129
75 and over	7	7	9	12	15	20	25
All ages	1 310	1 438	1 610	1 826	2 098	2 440	2 876
<i>Per cent of total population</i>							
0-14	40.8	41.3	42.2	42.9	43.4	43.9	44.5
15-29	27.5	26.8	26.2	25.6	25.5	25.6	25.7
30-44	17.6	17.5	17.1	16.8	16.3	15.7	15.1
45-59	9.8	9.9	9.9	9.9	9.8	9.7	9.4
60-74	3.8	4.0	4.0	4.1	4.2	4.4	4.5
75 and over	0.5	0.5	0.6	0.7	0.7	0.8	0.9
All ages	100.0	100.0	100.0	100.0	99.9	100.1	100.1

III. LOW-MORTALITY PROJECTIONS (*continued*)

7. LAOS

		(b) Detailed age groups, by sex (in thousands)						
		1950	1955	1960	1965	1970	1975	1980
MALES								
0-4	108	122	139	159	184	217	263	
5-9	86	96	111	129	150	177	211	
10-14	76	83	93	109	127	149	175	
15-19	69	74	81	91	107	125	147	
20-24	61	65	71	78	89	105	123	
25-29	53	57	62	68	76	86	103	
30-34	46	50	54	60	66	74	85	
35-39	39	43	47	52	58	64	72	
40-44	33	36	40	44	50	56	63	
45-49	27	30	33	37	42	48	54	
50-54	21	24	27	30	35	40	45	
55-59	16	18	20	24	27	32	37	
60-64	12	13	15	17	20	24	29	
65-69	8	9	10	12	14	17	21	
70-74	4	5	6	7	9	11	13	
75-79	2	2	3	4	4	6	7	
80-84	1	1	1	1	2	2	3	
85 and over	0	0	0	0	1	1	1	
All ages	662	728	813	922	1 061	1 234	1 452	
FEMALES								
0-4	105	119	136	154	179	211	254	
5-9	84	93	109	126	146	172	205	
10-14	75	81	91	106	124	144	171	
15-19	67	72	79	89	104	122	143	
20-24	59	63	69	76	86	102	121	
25-29	51	55	60	66	74	84	101	
30-34	44	48	52	58	64	72	83	
35-39	37	41	45	50	56	62	71	
40-44	31	34	38	43	48	54	61	
45-49	26	29	32	36	41	46	53	
50-54	21	23	26	30	34	39	44	
55-59	17	18	21	24	27	32	37	
60-64	13	14	16	18	21	25	29	
65-69	9	10	11	13	15	18	22	
70-74	5	6	7	8	10	12	15	
75-79	3	3	4	4	5	7	9	
80-84	1	1	1	2	2	3	4	
85 and over	0	0	0	1	1	1	1	
All ages	648	710	797	904	1 037	1 206	1 424	

III. LOW-MORTALITY PROJECTIONS (continued)

8. MALAYA

(a) Both sexes							
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (rounded to nearest thousand)</i>							
0-4	875	1 137	1 290	1 542	1 867	2 320	2 888
5-9	690	824	1 091	1 246	1 500	1 825	2 280
10-14	635	671	814	1 079	1 234	1 489	1 815
15-19	497	617	663	805	1 068	1 225	1 479
20-24	383	468	605	652	793	1 056	1 213
25-29	342	349	458	592	641	782	1 044
30-34	328	311	340	448	581	630	773
35-39	317	305	303	332	439	572	622
40-44	302	296	295	295	325	430	562
45-49	251	283	286	285	286	317	419
50-54	199	232	268	272	272	275	306
55-59	138	181	215	251	255	258	261
60-64	98	121	162	194	228	234	238
65-69	69	81	102	139	168	199	206
70-74	38	54	63	80	110	135	161
75-79	25	26	37	44	56	78	97
80-84	12	17	14	21	25	33	47
85 and over	12	17	11	9	10	12	17
All ages	5 211	5 990	7 017	8 286	9 858	11 870	14 428
<i>Broad age groups</i>							
0-14	2 200	2 632	3 195	3 867	4 601	5 634	6 983
15-29	1 222	1 434	1 726	2 049	2 502	3 063	3 736
30-44	947	912	938	1 075	1 345	1 632	1 957
45-59	588	696	769	808	813	850	986
60-74	205	256	327	413	506	568	605
75 and over	49	60	62	74	91	123	161
All ages	5 211	5 990	7 017	8 286	9 858	11 870	14 428
<i>Per cent of total population</i>							
0-14	42.2	43.9	45.5	46.7	46.7	47.5	48.4
15-29	23.5	23.9	24.6	24.7	25.4	25.8	25.9
30-44	18.2	15.2	13.4	13.0	13.6	13.7	13.6
45-59	11.3	11.6	11.0	9.8	8.2	7.2	6.8
60-74	3.9	4.3	4.7	5.0	5.1	4.8	4.2
75 and over	0.9	1.0	0.9	0.9	0.9	1.0	1.1
All ages	100.0	99.9	100.1	100.1	99.9	100.0	100.0

III. LOW-MORTALITY PROJECTIONS (*continued*)

8. MALAYA

(b) Detailed age groups, by sex (rounded to nearest thousand)							
	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	445	578	654	783	949	1 181	1 472
5-9	351	419	554	631	761	927	1 159
10-14	326	342	414	548	625	755	921
15-19	254	315	338	409	542	620	749
20-24	190	235	309	332	403	535	613
25-29	165	167	230	302	326	397	529
30-34	163	145	163	225	296	320	392
35-39	170	149	141	159	220	291	316
40-44	170	157	144	137	155	215	286
45-49	149	158	151	138	132	151	209
50-54	122	136	149	143	131	126	145
55-59	84	110	125	138	133	123	119
60-64	59	73	97	112	124	120	112
65-69	39	48	61	82	95	106	104
70-74	20	30	37	47	64	75	84
75-79	12	13	20	25	32	44	53
80-84	6	8	7	11	14	18	26
85 and over	6	9	5	4	5	6	9
All ages	2 731	3 092	3 599	4 226	5 007	6 010	7 298
FEMALES							
0-4	430	559	636	759	918	1 139	1 416
5-9	339	405	537	615	739	898	1 121
10-14	309	329	400	531	609	734	894
15-19	243	302	325	396	526	605	730
20-24	193	233	296	320	390	521	600
25-29	177	182	228	290	315	385	515
30-34	165	166	177	223	285	310	381
35-39	147	156	162	173	219	281	306
40-44	132	139	151	158	170	215	276
45-49	102	125	135	147	154	166	210
50-54	77	96	119	129	141	149	161
55-59	54	71	90	113	122	135	142
60-64	39	48	65	82	104	114	126
65-69	30	33	41	57	73	93	102
70-74	18	24	26	33	46	60	77
75-79	13	13	17	19	24	34	44
80-84	6	9	7	10	11	15	21
85 and over	6	8	6	5	5	6	8
All ages	2 480	2 898	3 418	4 060	4 851	5 860	7 130

III. LOW-MORTALITY PROJECTIONS (continued)

9. PHILIPPINES

(a) Both sexes							
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 776	4 303	5 179	6 222	7 559	9 135	11 175
5-9	2 879	3 509	4 068	4 969	6 047	7 391	8 980
10-14	2 479	2 816	3 450	4 017	4 925	6 004	7 348
15-19	2 097	2 423	2 767	3 404	3 979	4 886	5 964
20-24	1 663	2 030	2 360	2 712	3 355	3 931	4 838
25-29	1 391	1 598	1 967	2 305	2 666	3 307	3 886
30-34	1 238	1 333	1 547	1 918	2 264	2 625	3 266
35-39	1 088	1 182	1 287	1 505	1 880	2 226	2 587
40-44	895	1 032	1 136	1 247	1 470	1 841	2 187
45-49	675	840	983	1 092	1 208	1 430	1 797
50-54	513	623	787	931	1 044	1 162	1 380
55-59	442	461	570	730	875	987	1 103
60-64	396	381	406	512	665	802	911
65-69	292	320	317	345	443	582	707
70-74	180	212	241	247	275	357	474
75-79	94	112	138	164	173	196	258
80-84	40	46	58	76	95	101	117
85 and over	12	15	19	26	35	46	54
All ages	20 150	23 236	27 280	32 422	38 957	47 009	57 032
<i>Broad age groups (in thousands)</i>							
0-14	9 134	10 628	12 697	15 208	18 531	22 530	27 503
15-29	5 151	6 051	7 094	8 421	9 999	12 124	14 688
30-44	3 221	3 547	3 970	4 670	5 614	6 692	8 040
45-59	1 630	1 924	2 340	2 753	3 127	3 579	4 280
60-74	868	913	964	1 104	1 383	1 741	2 092
75 and over	146	173	215	266	303	343	429
All ages	20 150	23 236	27 280	32 422	38 957	47 009	57 032
<i>Per cent of total population</i>							
0-14	45.3	45.7	46.5	46.9	47.6	47.9	48.2
15-29	25.6	26.0	26.0	26.0	25.7	25.8	25.8
30-44	16.0	15.3	14.6	14.4	14.4	14.2	14.1
45-59	8.1	8.3	8.6	8.5	8.0	7.6	7.5
60-74	4.3	3.9	3.5	3.4	3.6	3.7	3.7
75 and over	0.7	0.7	0.8	0.8	0.8	0.7	0.8
All ages	100.0	99.9	100.0	100.0	100.1	99.9	100.1

III. LOW-MORTALITY PROJECTIONS (continued)

9. PHILIPPINES

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 977	2 180	2 624	3 155	3 843	4 650	5 695
5-9	1 478	1 836	2 059	2 515	3 063	3 753	4 565
10-14	1 225	1 447	1 806	2 033	2 492	3 040	3 729
15-19	1 018	1 198	1 422	1 782	2 013	2 471	3 018
20-24	807	986	1 167	1 393	1 755	1 987	2 444
25-29	682	776	955	1 139	1 368	1 728	1 962
30-34	617	654	751	931	1 118	1 346	1 705
35-39	546	589	631	730	912	1 098	1 325
40-44	453	517	565	610	712	891	1 077
45-49	353	423	490	541	589	690	867
50-54	274	323	393	461	514	563	662
55-59	224	243	292	361	429	481	530
60-64	194	190	211	259	324	388	438
65-69	143	154	155	176	220	278	335
70-74	86	101	113	118	137	173	221
75-79	44	52	64	75	80	95	121
80-84	18	21	26	34	42	45	55
85 and over	5	6	8	11	15	19	23
All ages	10 144	11 696	13 732	16 324	19 626	23 696	28 772
FEMALES							
0-4	1 799	2 123	2 555	3 067	3 716	4 485	5 480
5-9	1 401	1 673	2 009	2 454	2 984	3 638	4 415
10-14	1 254	1 369	1 644	1 984	2 433	2 964	3 619
15-19	1 079	1 225	1 345	1 622	1 965	2 415	2 946
20-24	856	1 044	1 193	1 319	1 600	1 944	2 394
25-29	709	822	1 012	1 166	1 298	1 579	1 924
30-34	621	679	796	987	1 146	1 279	1 561
35-39	542	593	656	775	968	1 128	1 262
40-44	442	515	571	637	758	950	1 110
45-49	322	417	493	551	619	740	930
50-54	239	300	394	470	530	599	718
55-59	218	218	278	369	446	506	573
60-64	202	191	195	253	341	414	473
65-69	149	166	162	169	223	304	372
70-74	94	111	128	129	138	184	253
75-79	50	60	74	89	93	101	137
80-84	22	25	32	42	53	56	62
85 and over	7	9	11	15	20	27	31
All ages	10 006	11 540	13 548	16 098	19 331	23 313	28 260

III. LOW-MORTALITY PROJECTIONS (*continued*)

10. PORTUGUESE TIMOR

	(a) <i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	71	78	89	101	116	136	161
5-9	57	62	70	81	95	111	131
10-14	51	55	60	69	81	93	109
15-19	45	49	53	59	67	79	93
20-24	41	43	47	51	57	65	77
25-29	35	37	41	45	49	55	64
30-34	31	33	35	39	43	48	54
35-39	26	27	31	33	37	42	47
40-44	22	23	26	29	32	36	41
45-49	18	19	21	24	27	31	35
50-54	14	16	18	20	22	26	29
55-59	11	12	14	16	18	20	24
60-64	8	9	10	12	14	16	18
65-69	6	6	7	8	9	11	14
70-74	3	4	4	5	6	7	9
75-79	2	2	2	2	3	4	5
80-84	0	0	0	1	2	2	2
85 and over	0	0	0	0	0	0	0
All ages	441	475	528	595	678	782	913
<i>Broad age groups (in thousands)</i>							
0-14	179	195	219	251	292	340	401
15-29	121	129	141	155	173	199	234
30-44	79	83	92	101	112	126	142
45-59	43	47	53	60	67	77	88
60-74	17	19	21	25	29	34	41
75 and over	2	2	2	3	5	6	7
All ages	441	475	528	595	678	782	913
<i>Per cent of total population</i>							
0-14	40.6	41.1	41.5	42.2	43.1	43.5	43.9
15-29	27.4	27.2	26.7	26.1	25.5	25.4	25.6
30-44	17.9	17.5	17.4	17.0	16.5	16.1	15.6
45-59	9.8	9.9	10.0	10.1	9.9	9.8	9.6
60-74	3.9	4.0	4.0	4.2	4.3	4.3	4.5
75 and over	0.5	0.4	0.4	0.5	0.7	0.8	0.8
All ages	100.1	100.1	100.0	100.1	100.0	99.9	100.0

III. LOW-MORTALITY PROJECTIONS (continued)

10. PORTUGUESE TIMOR

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	36	39	45	51	59	69	82
5-9	29	31	35	41	48	56	66
10-14	26	28	30	35	41	47	55
15-19	23	25	27	30	34	40	47
20-24	21	22	24	26	29	33	39
25-29	18	19	21	23	25	28	32
30-34	16	17	18	20	22	24	27
35-39	13	14	16	17	19	21	24
40-44	11	12	13	15	16	18	21
45-49	9	10	11	12	14	16	18
50-54	7	8	9	10	11	13	15
55-59	5	6	7	8	9	10	12
60-64	4	4	5	6	7	8	9
65-69	3	3	3	4	4	5	7
70-74	1	2	2	2	3	3	4
75-79	1	1	1	1	1	2	2
80-84	0	0	0	0	1	1	1
85 and over	0	0	0	0	0	0	0
All ages	223	241	267	301	343	394	461
FEMALES							
0-4	35	39	44	50	57	67	79
5-9	28	31	35	40	47	55	65
10-14	25	27	30	34	40	46	54
15-19	22	24	26	29	33	39	46
20-24	20	21	23	25	28	32	38
25-29	17	18	20	22	24	27	32
30-34	15	16	17	19	21	24	27
35-39	13	13	15	16	18	21	23
40-44	11	11	13	14	16	18	20
45-49	9	9	10	12	13	15	17
50-54	7	8	9	10	11	13	14
55-59	6	6	7	8	9	10	12
60-64	4	5	5	6	7	8	9
65-69	3	3	4	4	5	6	7
70-74	2	2	2	3	3	4	5
75-79	1	1	1	1	2	2	3
80-84	0	0	0	1	1	1	1
85 and over	0	0	0	0	0	0	0
All ages	218	234	261	294	335	388	452

III. LOW-MORTALITY PROJECTIONS (continued)

12. THAILAND

	(a) Both sexes						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 187	3 754	4 440	5 182	6 044	7 263	8 769
5-9	2 484	2 933	3 519	4 230	5 004	5 910	7 140
10-14	2 318	2 422	2 877	3 468	4 185	4 968	5 876
15-19	2 069	2 258	2 373	2 832	3 428	4 152	4 936
20-24	1 707	1 994	2 193	2 320	2 784	3 388	4 111
25-29	1 357	1 624	1 924	2 134	2 272	2 744	3 348
30-34	1 148	1 286	1 558	1 870	2 088	2 238	2 710
35-39	1 031	1 084	1 229	1 504	1 826	2 053	2 207
40-44	877	964	1 028	1 180	1 457	1 789	2 017
45-49	719	809	905	978	1 134	1 412	1 745
50-54	563	650	745	847	927	1 085	1 360
55-59	417	494	584	682	786	871	1 028
60-64	303	350	427	515	612	717	802
65-69	206	237	283	355	439	531	630
70-74	129	145	172	214	277	351	433
75-79	67	76	89	113	146	195	253
80-84	30	30	37	47	62	85	117
85 and over	17	12	12	16	21	29	41
All ages	18 629	21 122	24 396	28 487	33 492	39 781	47 523
<i>Broad age groups (in thousands)</i>							
0-14	7 989	9 109	10 836	12 880	15 233	18 141	21 785
15-29	5 133	5 876	6 490	7 286	8 484	10 284	12 395
30-44	3 056	3 334	3 815	4 554	5 371	6 080	6 934
45-59	1 699	1 953	2 234	2 507	2 847	3 368	4 133
60-74	638	732	882	1 084	1 328	1 599	1 865
75 and over	114	118	139	176	229	309	411
All ages	18 629	21 122	24 396	28 487	33 492	39 781	47 523
<i>Per cent of total population</i>							
0-14	42.9	43.1	44.4	45.2	45.5	45.6	45.8
15-29	27.6	27.8	26.6	25.6	25.3	25.9	26.1
30-44	16.4	15.8	15.6	16.0	16.0	15.3	14.6
45-59	9.1	9.2	9.2	8.8	8.5	8.5	8.7
60-74	3.4	3.5	3.6	3.8	4.0	4.0	3.9
75 and over	0.6	0.6	0.6	0.6	0.7	0.8	0.9
All ages	100.0	100.0	100.0	100.0	100.0	100.1	100.0

III. LOW-MORTALITY PROJECTIONS (continued)

12. THAILAND

(b) Detailed age groups, by sex (in thousands)

	1950	1955	1960	1965	1970	1975	1980
MALES							
0-4	1 653	1 901	2 249	2 627	3 069	3 697	4 469
5-9	1 251	1 520	1 781	2 141	2 534	2 997	3 630
10-14	1 173	1 221	1 492	1 755	2 118	2 515	2 978
15-19	1 039	1 144	1 197	1 469	1 735	2 100	2 497
20-24	840	1 002	1 111	1 170	1 443	1 713	2 077
25-29	661	796	967	1 081	1 145	1 421	1 691
30-34	566	624	760	940	1 057	1 127	1 402
35-39	520	531	593	730	917	1 038	1 110
40-44	444	481	499	565	703	897	1 018
45-49	359	403	446	470	538	676	872
50-54	277	318	365	411	440	509	646
55-59	204	236	279	328	375	407	476
60-64	149	166	198	240	287	335	368
65-69	100	112	129	159	198	242	287
70-74	61	67	78	94	119	152	191
75-79	29	34	39	49	61	80	105
80-84	12	12	16	19	25	33	45
85 and over	6	4	4	6	8	11	15
All ages	9 344	10 572	12 203	14 254	16 772	19 950	23 877
FEMALES							
0-4	1 534	1 853	2 191	2 555	2 975	3 566	4 300
5-9	1 233	1 413	1 738	2 089	2 470	2 913	3 510
10-14	1 145	1 201	1 385	1 713	2 067	2 453	2 898
15-19	1 030	1 114	1 176	1 363	1 693	2 052	2 439
20-24	867	992	1 082	1 150	1 341	1 675	2 034
25-29	696	828	957	1 053	1 127	1 323	1 657
30-34	582	662	798	930	1 031	1 111	1 308
35-39	511	553	636	774	909	1 015	1 097
40-44	433	483	529	615	754	892	999
45-49	360	406	459	508	596	736	873
50-54	286	332	380	436	487	576	714
55-59	213	258	305	354	411	464	552
60-64	154	184	229	275	325	382	434
65-69	106	125	154	196	241	289	343
70-74	68	78	94	120	158	199	242
75-79	38	42	50	64	85	115	148
80-84	18	18	22	28	37	52	72
85 and over	11	8	8	10	13	18	26
All ages	9 285	10 550	12 193	14 233	16 720	19 831	23 646

III. LOW-MORTALITY PROJECTIONS (*continued*)

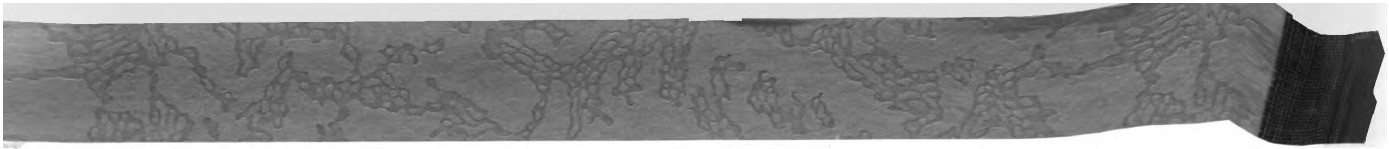
13. VIET-NAM

	(a) <i>Both sexes</i>						
	1950	1955	1960	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>							
0-4	3 180	2 968	4 916	5 554	6 046	6 459	7 431
5-9	3 272	2 820	2 758	4 648	5 329	5 876	6 350
10-14	3 057	3 154	2 758	2 711	4 590	5 282	5 841
15-19	2 748	2 950	3 082	2 709	2 675	4 545	5 247
20-24	2 426	2 589	2 854	3 003	2 655	2 637	4 501
25-29	2 120	2 255	2 488	2 766	2 933	2 610	2 607
30-34	1 845	1 952	2 161	2 407	2 697	2 878	2 577
35-39	1 595	1 677	1 864	2 086	2 342	2 644	2 838
40-44	1 368	1 426	1 582	1 789	2 021	2 287	2 597
45-49	1 158	1 196	1 339	1 505	1 720	1 959	2 232
50-54	960	984	1 104	1 255	1 427	1 646	1 889
55-59	772	787	885	1 010	1 165	1 340	1 562
60-64	592	600	679	781	907	1 062	1 237
65-69	422	436	486	564	664	787	936
70-74	268	282	318	366	440	531	643
75-79	142	149	176	208	249	309	385
80-84	57	60	73	92	114	144	186
85 and over	17	17	22	29	41	54	72
All ages	25 999	26 302	29 545	33 483	38 015	43 050	49 131
<i>Broad age groups</i>							
0-14	9 509	8 942	10 432	12 913	15 965	17 617	19 622
15-29	7 294	7 794	8 424	8 478	8 263	9 792	12 355
30-44	4 808	5 055	5 607	6 282	7 060	7 809	8 012
45-59	2 890	2 967	3 328	3 770	4 312	4 945	5 683
60-74	1 282	1 318	1 483	1 711	2 011	2 380	2 816
75 and over	216	226	271	329	404	507	643
All ages	25 999	26 302	29 545	33 483	38 015	43 050	49 131
<i>Per cent of total population</i>							
0-14	36.6	34.0	35.3	38.6	42.0	40.9	39.9
15-29	28.1	29.6	28.5	25.3	21.7	22.7	25.1
30-44	18.5	19.2	19.0	18.8	18.6	18.1	16.3
45-59	11.1	11.3	11.3	11.3	11.3	11.5	11.6
60-74	4.9	5.0	5.0	5.1	5.3	5.5	5.7
75 and over	0.8	0.9	0.9	1.0	1.1	1.2	1.3
All ages	100.0	100.0	100.0	100.1	100.0	99.9	99.9

III. LOW-MORTALITY PROJECTIONS (continued)

13. VIET-NAM

		(b) Detailed age groups, by sex (in thousands)						
		1950	1955	1960	1965	1970	1975	1980
MALES								
0-4	1 607	1 502	2 490	2 814	3 066	3 284	3 787	
5-9	1 658	1 425	1 395	2 352	2 697	2 976	3 224	
10-14	1 550	1 600	1 394	1 371	2 323	2 672	2 957	
15-19	1 396	1 499	1 565	1 370	1 353	2 300	2 653	
20-24	1 235	1 305	1 451	1 525	1 342	1 333	2 275	
25-29	1 081	1 137	1 255	1 406	1 488	1 318	1 316	
30-34	943	983	1 090	1 214	1 370	1 459	1 300	
35-39	816	841	939	1 052	1 180	1 342	1 437	
40-44	697	709	797	899	1 017	1 150	1 316	
45-49	585	585	662	755	861	982	1 119	
50-54	479	472	535	616	711	819	942	
55-59	380	369	419	484	566	661	770	
60-64	286	275	313	364	428	508	602	
65-69	200	201	218	255	303	364	439	
70-74	124	130	143	160	194	236	290	
75-79	64	67	79	91	106	132	166	
80-84	25	26	32	40	48	59	76	
85 and over	7	7	9	12	17	22	28	
All ages	13 133	13 133	14 786	16 780	19 070	21 617	24 697	
FEMALES								
0-4	1 573	1 466	2 426	2 740	2 980	3 175	3 644	
5-9	1 614	1 395	1 363	2 296	2 632	2 900	3 126	
10-14	1 507	1 554	1 364	1 340	2 267	2 610	2 884	
15-19	1 352	1 451	1 517	1 339	1 322	2 245	2 594	
20-24	1 191	1 284	1 403	1 478	1 313	1 304	2 226	
25-29	1 039	1 118	1 233	1 360	1 445	1 292	1 291	
30-34	902	969	1 071	1 193	1 327	1 419	1 277	
35-39	779	836	925	1 034	1 162	1 302	1 401	
40-44	671	717	785	890	1 004	1 137	1 281	
45-49	573	611	677	750	859	977	1 113	
50-54	481	512	569	639	716	827	947	
55-59	392	418	466	526	599	679	792	
60-64	306	325	366	417	479	554	635	
65-69	222	235	268	309	361	423	497	
70-74	144	152	175	206	246	295	353	
75-79	78	82	97	117	143	177	219	
80-84	32	34	41	52	66	85	110	
85 and over	10	10	13	17	24	32	44	
All ages	12 866	13 169	14 759	16 703	18 945	21 433	24 434	



Annex IV

DETAILED RESULTS OF POPULATION PROJECTIONS IN WHICH A FUTURE DECLINE OF FERTILITY IS ASSUMED

EXPLANATORY NOTE

The projections presented in these tables are highly speculative, as explained in Section III of the text. The possibility of an eventual fertility decline is of interest where it is believed that such a trend may emerge as a concomitant of expected future economic and social changes in the area. But, since there is hardly an indication that such a trend has already begun in any part of South-East Asia, fertility decline is in no case assumed to begin before 1960.

If fertility decline begins in 1960, the figures for 1965 will be the first to be affected, because projections are made by five-year intervals of time. Up to 1960, the projections coincide with those made according to conservative assump-

tions, as tabulated in Annex II. Two rates of fertility decline, by 1 or by 2 per cent annually of the initial level, are assumed. The population estimates for years from 1965 to 1980 resulting from the two assumptions are presented in parallel columns on the same page, under the headings of moderate and rapid fertility decline respectively.

Because of their speculative nature, detailed results separately for each sex did not seem to present much interest and have, therefore, been omitted. This has made it possible to present results for any one country or area on one page only.

The possibility of extremely rapid fertility decline in Singapore is taken into account in a special projection, presented in Section IV.

IV. DECLINING-FERTILITY PROJECTIONS

1. BRITISH BORNEO (Brunei, North Borneo, and Sarawak)

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	209	226	243	266	203	208	208	209
5-9	170	193	209	228	170	189	192	195
10-14	144	166	188	205	144	166	184	189
15-19	121	140	162	184	121	140	162	180
20-24	113	117	136	157	113	117	136	157
25-29	98	107	111	131	98	107	111	131
30-34	80	93	103	107	80	93	103	107
35-39	67	75	89	98	67	75	89	98
40-44	59	63	71	83	59	63	71	83
45-49	51	54	58	66	51	54	58	66
50-54	44	46	49	54	44	46	49	54
55-59	35	39	42	45	35	39	42	45
60-64	25	29	34	35	25	29	34	35
65-69	17	20	24	27	17	20	24	27
70-74	10	12	14	18	10	12	14	18
75-79	5	6	7	9	5	6	7	9
80-84	2	2	2	4	2	2	2	4
85 and over	0	0	0	2	0	0	0	2
All ages	1 250	1 388	1 542	1 719	1 244	1 366	1 486	1 609
<i>Broad age groups (in thousands)</i>								
0-14	523	585	640	699	517	563	584	593
15-29	332	364	409	472	332	364	409	468
30-44	206	231	263	288	206	231	263	288
45-59	130	139	149	165	130	139	149	165
60-74	52	61	72	80	52	61	72	80
75 and over	7	8	9	15	7	8	9	15
All ages	1 250	1 388	1 542	1 719	1 244	1 366	1 486	1 609
<i>Per cent of total population</i>								
0-14	41.8	42.1	41.5	40.7	41.6	41.2	39.3	36.9
15-29	26.6	26.2	26.5	27.5	26.7	26.6	27.5	29.1
30-44	16.5	16.6	17.1	16.8	16.6	16.9	17.7	17.9
45-59	10.4	10.0	9.7	9.6	10.5	10.2	10.0	10.3
60-74	4.2	4.4	4.7	4.7	4.2	4.5	4.8	5.0
75 and over	0.6	0.6	0.6	0.9	0.6	0.6	0.6	0.9
All ages	100.1	99.9	100.1	100.2	100.2	100.0	99.9	100.1

IV. DECLINING-FERTILITY PROJECTIONS (*continued*)

2. BURMA

Both sexes	(a) <i>Moderate fertility decline</i>				(b) <i>Rapid fertility decline</i>			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	3 673	3 850	4 079	4 365	3 579	3 538	3 496	3 439
5-9	3 085	3 343	3 543	3 791	3 085	3 258	3 256	3 249
10-14	2 686	2 997	3 259	3 464	2 686	2 997	3 176	3 183
15-19	2 334	2 610	2 921	3 186	2 334	2 610	2 921	3 105
20-24	2 027	2 240	2 516	2 827	2 027	2 240	2 516	2 827
25-29	1 798	1 929	2 142	2 418	1 798	1 929	2 142	2 418
30-34	1 600	1 704	1 838	2 054	1 600	1 704	1 838	2 054
35-39	1 385	1 509	1 618	1 756	1 385	1 509	1 618	1 756
40-44	1 167	1 295	1 422	1 535	1 167	1 295	1 422	1 535
45-49	992	1 078	1 207	1 336	992	1 078	1 207	1 336
50-54	781	897	985	1 114	781	897	985	1 114
55-59	684	687	798	885	684	687	798	885
60-64	523	575	586	689	523	575	586	689
65-69	359	408	457	473	359	408	457	473
70-74	195	251	292	333	195	251	292	333
75-79	100	115	151	181	100	115	151	181
80-84	36	46	54	74	36	46	54	74
85 and over	10	12	16	21	10	12	16	21
All ages	23 435	25 546	27 884	30 502	23 341	25 149	26 931	28 672
<i>Broad age groups (in thousands)</i>								
0-14	9 444	10 190	10 881	11 620	9 350	9 793	9 928	9 871
15-29	6 159	6 779	7 579	8 431	6 159	6 779	7 579	8 350
30-44	4 152	4 508	4 878	5 345	4 152	4 508	4 878	5 345
45-59	2 457	2 662	2 990	3 335	2 457	2 662	2 990	3 335
60-74	1 077	1 234	1 335	1 495	1 077	1 234	1 335	1 495
75 and over	146	173	221	276	146	173	221	276
All ages	23 435	25 546	27 884	30 502	23 341	25 149	26 931	28 672
<i>Per cent of total population</i>								
0-14	40.3	39.9	39.0	38.1	40.1	38.9	36.9	34.4
15-29	26.3	26.5	27.2	27.6	26.4	27.0	28.1	29.1
30-44	17.7	17.6	17.5	17.5	17.8	17.9	18.1	18.6
45-59	10.5	10.4	10.7	10.9	10.5	10.6	11.1	11.6
60-74	4.6	4.8	4.8	4.9	4.6	4.9	5.0	5.2
75 and over	0.6	0.7	0.8	0.9	0.6	0.7	0.8	1.0
All ages	100.0	99.9	100.0	99.9	100.0	100.0	100.0	99.9

IV. DECLINING-FERTILITY PROJECTIONS (continued)

3. CAMBODIA

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	978	1 050	1 143	1 269	953	965	979	1 000
5-9	820	917	992	1 090	820	893	911	934
10-14	687	804	902	978	687	804	879	899
15-19	576	673	790	887	576	673	790	864
20-24	475	560	656	772	475	560	656	772
25-29	435	458	543	638	435	458	543	638
30-34	379	419	443	526	379	419	443	526
35-39	303	364	404	430	303	364	404	430
40-44	237	287	350	389	237	287	350	389
45-49	195	223	272	334	195	223	272	334
50-54	168	181	207	255	168	181	207	255
55-59	134	151	163	189	134	151	163	189
60-64	100	115	132	144	100	115	132	144
65-69	68	81	95	109	68	81	95	109
70-74	40	50	61	72	40	50	61	72
75-79	21	25	32	40	21	25	32	40
80-84	8	10	13	17	8	10	13	17
85 and over	3	3	4	6	3	3	4	6
All ages	5 627	6 371	7 202	8 145	5 602	6 262	6 934	7 618
<i>Broad age groups (in thousands)</i>								
0-14	2 485	2 771	3 037	3 337	2 460	2 662	2 769	2 833
15-29	1 486	1 691	1 989	2 297	1 486	1 691	1 989	2 274
30-44	919	1 070	1 197	1 345	919	1 070	1 197	1 345
45-59	497	555	642	778	497	555	642	778
60-74	208	246	288	325	208	246	288	325
75 and over	32	38	49	63	32	38	49	63
All ages	5 627	6 371	7 202	8 145	5 602	6 262	6 934	7 618
<i>Per cent of total population</i>								
0-14	44.2	43.5	42.2	41.0	43.9	42.5	39.9	37.2
15-29	26.4	26.5	27.6	28.2	26.5	27.0	28.7	29.9
30-44	16.3	16.8	16.6	16.5	16.4	17.1	17.3	17.7
45-59	8.8	8.7	8.9	9.6	8.9	8.9	9.3	10.2
60-74	3.7	3.9	4.0	4.0	3.7	3.9	4.2	4.3
75 and over	0.6	0.6	0.7	0.8	0.6	0.6	0.7	0.8
All ages	100.0	100.0	100.0	100.1	100.0	100.0	100.1	100.1

IV. DECLINING-FERTILITY PROJECTIONS (continued)

4. CEYLON

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	1 820	2 051	2 347	2 666	1 773	1 885	2 012	2 100
5-9	1 561	1 758	1 993	2 295	1 561	1 713	1 831	1 967
10-14	1 356	1 545	1 743	1 980	1 356	1 545	1 698	1 819
15-19	1 176	1 347	1 539	1 737	1 176	1 347	1 539	1 692
20-24	931	1 165	1 338	1 531	931	1 165	1 338	1 531
25-29	761	919	1 153	1 326	761	919	1 153	1 326
30-34	699	749	907	1 141	699	749	907	1 141
35-39	632	688	739	896	632	688	739	896
40-44	552	618	675	727	552	618	675	727
45-49	478	538	604	661	478	538	604	661
50-53	408	462	521	586	408	462	521	586
55-59	343	387	440	499	343	387	440	499
60-64	269	316	359	409	269	316	359	409
65-69	188	235	279	319	188	235	279	319
70-74	119	150	190	228	119	150	190	228
75-79	65	84	107	138	65	84	107	138
80-84	29	37	49	64	29	37	49	64
85 and over	11	14	18	24	11	14	18	24
All ages	11 398	13 063	15 001	17 227	11 351	12 852	14 459	16 127
<i>Broad age groups (in thousands)</i>								
0-14	4 737	5 354	6 083	6 941	4 690	5 143	5 541	5 886
15-29	2 868	3 431	4 030	4 594	2 868	3 431	4 030	4 549
30-44	1 883	2 055	2 321	2 764	1 883	2 055	2 321	2 764
45-59	1 229	1 387	1 565	1 746	1 229	1 387	1 565	1 746
60-74	576	701	828	956	576	701	828	956
75 and over	105	135	174	226	105	135	174	226
All ages	11 398	13 063	15 001	17 227	11 351	12 852	14 459	16 127
<i>Per cent of total population</i>								
0-14	41.6	41.0	40.6	40.3	41.3	40.0	38.3	36.5
15-29	25.2	26.3	26.9	26.7	25.3	26.7	27.9	28.2
30-34	16.5	15.7	15.5	16.0	16.6	16.0	16.1	17.1
45-59	10.8	10.6	10.4	10.1	10.8	10.8	10.8	10.8
60-74	5.1	5.4	5.5	5.5	5.1	5.5	5.7	5.9
75 and over	0.9	1.0	1.2	1.3	0.9	1.1	1.2	1.4
All ages	100.1	100.0	100.1	99.9	100.0	100.1	100.0	99.9

IV. DECLINING-FERTILITY PROJECTIONS (*continued*)

5. CHINA (TAIWAN)

Both sexes	(a) <i>Moderate fertility decline</i>				(b) <i>Rapid fertility decline</i>			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	2 220	2 427	2 789	3 286	2 163	2 231	2 391	2 589
5-9	1 928	2 182	2 397	2 766	1 928	2 126	2 203	2 371
10-14	1 682	1 919	2 174	2 390	1 682	1 919	2 119	2 196
15-19	1 136	1 675	1 914	2 169	1 136	1 675	1 914	2 114
20-24	949	1 130	1 669	1 909	949	1 130	1 669	1 909
25-29	897	943	1 125	1 664	897	943	1 125	1 664
30-34	754	888	936	1 118	754	888	936	1 118
35-39	670	743	878	927	670	743	878	927
40-44	566	656	730	865	566	656	730	865
45-49	448	548	638	712	448	548	638	712
50-54	399	428	526	615	399	428	526	615
55-59	306	372	401	496	306	372	401	496
60-64	220	275	337	367	220	275	337	367
65-69	148	187	236	292	148	187	236	292
70-74	89	115	147	188	89	115	147	188
75-79	51	60	79	104	51	60	79	104
80-84	23	28	34	46	23	28	34	46
85 and over	9	10	13	17	9	10	13	17
All ages	12 495	14 586	17 023	19 931	12 438	14 334	16 376	18 590
<i>Broad age groups (in thousands)</i>								
0-14	5 830	6 528	7 360	8 442	5 773	6 276	6 713	7 156
15-29	2 982	3 748	4 708	5 742	2 982	3 748	4 708	5 687
30-44	1 990	2 287	2 544	2 910	1 990	2 287	2 544	2 910
45-59	1 153	1 348	1 565	1 823	1 153	1 348	1 565	1 823
60-74	457	577	720	847	457	577	720	847
75 and over	83	98	126	167	83	98	126	167
All ages	12 495	14 586	17 023	19 931	12 438	14 334	16 376	18 590
<i>Per cent of total population</i>								
0-14	46.7	44.8	43.2	42.4	46.4	43.8	41.0	38.5
15-29	23.9	25.7	27.7	28.8	24.0	26.1	28.7	30.6
30-44	15.9	15.7	14.9	14.6	16.0	16.0	15.5	15.7
45-59	9.2	9.2	9.2	9.1	9.3	9.4	9.6	9.8
60-74	3.7	4.0	4.2	4.2	3.7	4.0	4.4	4.6
74 and over	0.7	0.7	0.7	0.8	0.7	0.7	0.8	0.9
All ages	100.1	100.1	99.9	99.9	100.1	100.0	100.0	100.1

IV. DECLINING-FERTILITY PROJECTIONS (continued)

6. INDONESIA

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	15 506	15 675	16 411	17 934	15 109	14 404	14 066	14 130
5-9	13 503	14 410	14 698	15 514	13 503	14 041	13 506	13 297
10-14	11 771	13 205	14 130	14 450	11 771	13 205	13 768	13 279
15-19	8 357	11 505	12 940	13 880	8 357	11 505	12 940	13 524
20-24	8 035	8 087	11 172	12 607	8 035	8 087	11 172	12 607
25-29	7 953	7 722	7 804	10 826	7 953	7 722	7 804	10 826
30-34	7 093	7 622	7 438	7 550	7 093	7 622	7 438	7 550
35-39	6 145	6 774	7 319	7 176	6 145	6 774	7 319	7 176
40-44	5 251	5 832	6 468	7 027	5 251	5 832	6 468	7 027
45-49	4 413	4 930	5 514	6 153	4 413	4 930	5 514	6 153
50-54	3 623	4 072	4 585	5 163	3 623	4 072	4 585	5 163
55-59	2 878	3 255	3 693	4 194	2 878	3 255	3 693	4 194
60-64	2 179	2 483	2 840	3 255	2 179	2 483	2 840	3 255
65-69	1 532	1 761	2 035	2 359	1 532	1 761	2 035	2 359
70-74	961	1 117	1 306	1 535	961	1 117	1 306	1 535
75-79	506	598	711	850	506	598	711	850
80-84	206	248	303	372	206	248	303	372
85 and over	61	76	98	125	61	76	98	125
All ages	99 973	109 372	119 465	130 970	99 576	107 732	115 566	123 422
<i>Broad age groups (in thousands)</i>								
0-14	40 780	43 290	45 239	47 898	40 383	41 650	41 340	40 706
15-29	24 345	27 314	31 916	37 313	24 345	27 314	31 916	36 957
30-44	18 489	20 228	21 225	21 753	18 489	20 228	21 225	21 753
45-59	10 914	12 257	13 792	15 510	10 914	12 257	13 792	15 510
60-74	4 672	5 361	6 181	7 149	4 672	5 361	6 181	7 149
75 and over	773	922	1 112	1 347	773	922	1 112	1 347
All ages	99 973	109 372	119 465	130 970	99 576	107 732	115 566	123 422
<i>Per cent of total population</i>								
0-14	40.8	39.6	37.9	36.6	40.6	38.7	35.8	33.0
15-29	24.4	25.0	26.7	28.5	24.4	25.4	27.6	29.9
30-44	18.5	18.5	17.8	16.6	18.6	18.8	18.4	17.6
45-49	10.9	11.2	11.5	11.8	11.0	11.4	11.9	12.6
60-74	4.7	4.9	5.2	5.5	4.7	5.0	5.3	5.8
75 and over	0.8	0.8	0.9	1.0	0.8	0.9	1.0	1.1
All ages	100.1	100.0	100.0	100.0	100.1	100.2	100.0	100.0

IV. DECLINING-FERTILITY PROJECTIONS (continued)

7. LAOS

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	282	302	324	349	274	278	277	274
5-9	235	259	280	303	235	253	258	260
10-14	203	229	253	273	203	229	247	251
15-19	176	198	223	248	176	198	223	242
20-24	151	169	191	217	151	169	191	217
25-29	132	144	162	184	132	144	162	184
30-34	114	125	138	156	114	125	138	156
35-39	98	108	119	132	98	108	119	132
40-44	84	93	102	113	84	93	102	113
45-49	71	78	87	97	71	78	87	97
50-54	58	64	72	80	58	64	72	80
55-59	45	51	57	65	45	51	57	65
60-64	33	38	43	49	33	38	43	49
65-69	23	27	31	35	23	27	31	35
70-74	13	17	19	22	13	17	19	22
75-79	7	9	9	12	7	9	9	12
80-84	3	3	4	5	3	3	4	5
85 and over	0	1	1	2	0	1	1	2
All ages	1 728	1 915	2 115	2 342	1 720	1 885	2 040	2 196
<i>Broad age groups (in thousands)</i>								
0-14	720	790	857	925	712	760	782	785
15-29	459	511	576	649	459	511	576	643
30-44	296	326	359	401	296	326	359	401
45-59	174	193	216	242	174	193	216	242
60-74	69	82	93	106	69	82	93	106
75 and over	10	13	14	19	10	13	14	19
All ages	1 728	1 915	2 115	2 342	1 720	1 885	2 040	2 196
<i>Per cent of total population</i>								
0-14	41.7	41.3	40.5	39.5	41.4	40.3	38.3	35.7
15-29	26.6	26.7	27.2	27.7	26.7	27.1	28.2	29.3
30-44	17.1	17.0	17.0	17.1	17.2	17.3	17.6	18.3
45-59	10.1	10.1	10.2	10.3	10.1	10.2	10.6	11.0
60-74	4.0	4.3	4.4	4.5	4.0	4.4	4.6	4.8
75 and over	0.6	0.7	0.7	0.8	0.6	0.7	0.7	0.9
All ages	100.1	100.1	100.0	99.9	100.0	100.0	100.0	100.0

IV. DECLINING-FERTILITY PROJECTIONS (continued)

8. MALAYA

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	1 469	1 680	1 967	2 300	1 431	1 544	1 686	1 813
5-9	1 215	1 419	1 633	1 923	1 215	1 383	1 501	1 648
10-14	1 069	1 202	1 407	1 620	1 069	1 202	1 371	1 488
15-19	802	1 057	1 190	1 395	802	1 057	1 190	1 359
20-24	648	789	1 042	1 176	648	789	1 042	1 176
25-29	588	635	774	1 028	588	635	774	1 028
30-34	445	576	623	763	445	576	623	763
35-39	330	435	565	613	330	435	565	613
40-44	293	322	424	553	293	322	424	553
45-49	282	282	311	413	282	282	311	413
50-54	269	269	270	300	269	269	270	300
55-59	247	252	253	255	247	252	253	255
60-64	191	223	228	232	191	223	228	232
65-69	136	164	193	200	136	164	193	200
70-74	78	107	130	156	78	107	130	156
75-79	42	54	74	92	42	54	74	92
80-84	19	23	31	44	19	23	31	44
85 and over	8	10	11	15	8	10	11	15
All ages	8 131	9 499	11 126	13 078	8 093	9 327	10 677	12 148
<i>Broad age groups (in thousands)</i>								
0-14	3 753	4 301	5 007	5 843	3 715	4 129	4 558	4 949
15-29	2 038	2 481	3 006	3 599	2 038	2 481	3 006	3 563
30-44	1 068	1 333	1 612	1 929	1 068	1 333	1 612	1 929
45-59	798	803	834	968	798	803	834	968
60-74	405	494	551	588	405	494	551	588
75 and over	69	87	116	151	69	87	116	151
All ages	8 131	9 499	11 126	13 078	8 093	9 327	10 677	12 148
<i>Per cent of total population</i>								
0-14	46.2	45.3	45.0	44.7	45.9	44.3	42.7	40.7
15-29	25.1	26.1	27.0	27.5	25.2	26.6	28.2	29.3
30-44	13.1	14.0	14.5	14.7	13.2	14.3	15.1	15.9
45-59	9.8	8.5	7.5	7.4	9.9	8.6	7.8	8.0
60-74	5.0	5.2	5.0	4.5	5.0	5.3	5.2	4.8
75 and over	0.8	0.9	1.0	1.2	0.9	0.9	1.1	1.2
All ages	100.0	100.0	100.0	100.0	100.1	100.0	100.1	99.9

IV. DECLINING-FERTILITY PROJECTIONS (continued)

9. PHILIPPINES

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	5 655	6 304	7 063	7 960	5 510	5 793	6 054	6 271
5-9	4 641	5 346	6 005	6 778	4 641	5 209	5 518	5 810
10-14	3 837	4 562	5 268	5 930	3 837	4 562	5 133	5 449
15-19	3 331	3 768	4 492	5 198	3 331	3 768	4 492	5 065
20-24	2 665	3 245	3 683	4 404	2 665	3 245	3 683	4 404
25-29	2 256	2 583	3 157	3 597	2 256	2 583	3 157	3 597
30-34	1 871	2 183	2 509	3 079	1 871	2 183	2 509	3 079
35-39	1 464	1 806	2 116	2 441	1 464	1 806	2 116	2 441
40-44	1 210	1 406	1 742	2 050	1 210	1 406	1 742	2 050
45-49	1 055	1 151	1 344	1 675	1 055	1 151	1 344	1 675
50-54	896	988	1 085	1 276	896	988	1 085	1 276
55-59	698	819	911	1 007	698	819	911	1 007
60-64	484	616	729	818	484	616	729	818
65-69	332	402	517	620	323	402	517	620
70-74	226	243	308	402	226	243	308	402
75-79	146	146	161	208	146	146	161	208
80-84	66	77	78	89	66	77	78	89
85 and over	21	27	33	37	21	27	33	37
All ages	30 844	35 672	41 201	47 569	30 699	35 024	39 570	44 298
<i>Broad age groups (in thousands)</i>								
0-14	14 133	16 212	18 336	20 668	13 988	15 564	16 705	17 530
15-29	8 252	9 596	11 332	13 199	8 252	9 696	11 332	13 066
30-44	4 545	5 395	6 367	7 570	4 545	5 395	6 367	7 570
45-59	2 649	2 958	3 340	3 958	2 649	2 958	3 340	3 958
60-74	1 032	1 261	1 554	1 840	1 032	1 261	1 554	1 840
75 and over	233	250	272	334	233	250	272	334
All ages	30 844	35 672	41 201	47 569	30 699	35 024	39 570	44 298
<i>Per cent of total population</i>								
0-14	45.8	45.4	44.5	43.4	45.6	44.4	42.2	39.6
15-29	26.8	26.9	27.5	27.7	26.9	27.4	28.6	29.5
30-44	14.7	15.1	15.5	15.9	14.8	15.4	16.1	17.1
45-59	8.6	8.3	8.1	8.3	8.6	8.4	8.4	8.9
60-74	3.3	3.5	3.8	3.9	3.4	3.6	3.9	4.2
75 and over	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.8
All ages	100.0	99.9	100.1	99.9	100.1	99.9	99.9	100.1

IV. DECLINING-FERTILITY PROJECTIONS (*continued*)

10. PORTUGUESE TIMOR

<i>Both sexes</i>	<i>(a) Moderate fertility decline</i>				<i>(b) Rapid fertility decline</i>			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	92	97	104	110	90	89	90	86
5-9	75	83	88	95	75	81	80	81
10-14	65	73	81	86	65	73	79	79
15-19	57	63	71	79	57	63	71	77
20-24	50	55	61	69	50	55	61	69
25-29	43	47	53	59	43	47	53	59
30-34	38	41	45	50	38	41	45	50
35-39	33	35	39	43	33	35	39	43
40-44	28	30	33	37	28	30	33	37
45-49	23	26	28	32	23	26	28	32
50-54	18	20	24	26	18	20	24	26
55-59	14	16	18	20	14	16	18	20
60-64	10	12	14	16	10	12	14	16
65-69	7	8	10	11	7	8	10	11
70-74	4	5	6	7	4	5	6	7
75-79	2	2	3	4	2	2	3	4
80-84	0	1	2	2	0	1	2	2
85 and over	0	0	0	0	0	0	0	0
All ages	559	614	680	746	557	604	656	699
<i>Broad age groups (in thousands)</i>								
0-14	232	253	273	291	230	243	249	246
15-29	150	165	185	207	150	165	185	205
30-44	99	106	117	130	99	106	117	130
45-59	55	62	70	78	55	62	70	78
60-74	21	25	30	34	21	25	30	34
75 and over	2	3	5	6	2	3	5	6
All ages	559	614	680	746	557	604	656	699
<i>Per cent of total population</i>								
0-14	41.5	41.2	40.1	39.0	41.3	40.2	38.0	35.2
15-29	26.8	26.9	27.2	27.7	26.9	27.3	28.2	29.3
30-44	17.7	17.3	17.2	17.4	17.8	17.5	17.8	18.6
45-49	9.8	10.1	10.3	10.5	9.9	10.3	10.7	11.2
60-74	3.8	4.1	4.4	4.6	3.8	4.1	4.6	4.9
75 and over	0.4	0.5	0.7	0.8	0.4	0.5	0.8	0.9
All ages	100.0	100.1	99.9	100.0	100.1	99.9	100.1	100.1

IV. DECLINING-FERTILITY PROJECTIONS (continued)

11. SINGAPORE

Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	328	374	455	556	320	344	390	438
5-9	285	322	369	451	285	314	339	386
10-14	249	284	321	369	249	284	313	339
15-19	172	248	284	321	172	248	284	313
20-24	122	170	247	282	122	170	247	282
25-29	115	121	170	246	115	121	170	246
30-34	105	113	121	168	105	113	121	168
35-39	96	104	112	119	96	104	112	119
40-44	88	95	102	110	88	95	102	110
45-49	78	85	92	99	78	85	92	99
50-54	71	74	82	89	71	74	82	89
55-59	59	66	70	77	59	66	70	77
60-64	42	53	60	64	42	53	60	64
65-69	27	36	46	52	27	36	46	52
70-74	16	21	29	38	16	21	29	38
75-79	8	11	15	21	8	11	15	21
80-84	3	5	7	9	3	5	7	9
85 and over	1	1	3	3	1	1	3	3
All ages	1 865	2 183	2 585	3 074	1 857	2 145	2 482	2 853
<i>Broad age groups (in thousands)</i>								
0-14	862	980	1 145	1 376	854	942	1 042	1 163
15-29	409	539	701	849	409	539	701	841
30-44	289	312	335	397	289	312	335	397
45-59	208	225	244	265	208	225	244	265
60-74	85	110	135	154	85	110	135	154
75 and over	12	17	25	33	12	17	25	33
All ages	1 865	2 183	2 585	3 074	1 857	2 145	2 482	2 853
<i>Per cent of total population</i>								
0-14	46.2	44.9	44.3	44.8	46.0	43.9	42.0	40.8
15-29	21.9	24.7	27.1	27.6	22.0	25.1	28.2	29.5
30-44	15.5	14.3	13.0	12.9	15.6	14.5	13.5	13.9
45-59	11.2	10.3	9.4	8.6	11.2	10.5	9.8	9.3
60-74	4.6	5.0	5.2	5.0	4.6	5.1	5.4	5.4
75 and over	0.6	0.8	1.0	1.1	0.6	0.8	1.0	1.2
All ages	100.0	100.0	100.0	100.0	100.0	99.9	99.9	100.1

IV. DECLINING-FERTILITY PROJECTIONS (continued)

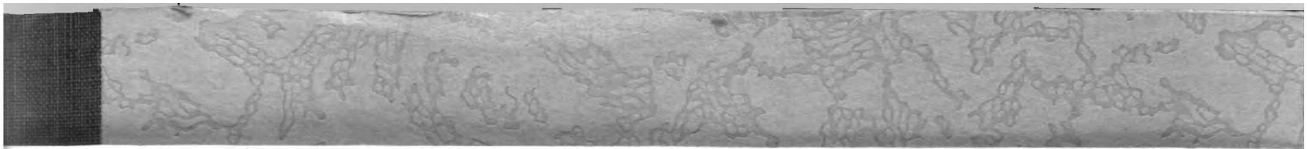
12. THAILAND

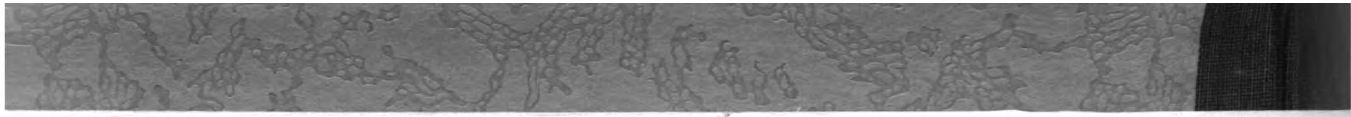
Both sexes	(a) Moderate fertility decline				(b) Rapid fertility decline			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	4 693	5 037	5 488	6 086	4 573	4 628	4 704	4 795
5-9	3 934	4 401	4 763	5 229	3 934	4 288	4 377	4 482
10-14	3 297	3 857	4 327	4 694	3 297	3 857	4 216	4 313
15-19	2 765	3 231	3 790	4 259	2 765	3 231	3 790	4 150
20-24	2 276	2 684	3 149	3 704	2 276	2 684	3 149	3 704
25-29	2 085	2 197	2 601	3 064	2 085	2 197	2 601	3 064
30-34	1 820	2 009	2 125	2 527	1 820	2 009	2 125	2 527
35-39	1 455	1 747	1 938	2 060	1 455	1 747	1 938	2 060
40-44	1 137	1 381	1 678	1 870	1 137	1 381	1 678	1 870
45-49	937	1 067	1 305	1 605	937	1 067	1 305	1 605
50-54	806	865	993	1 222	806	865	993	1 222
55-59	644	723	784	909	644	723	784	909
60-64	481	555	632	692	481	555	632	692
65-69	327	389	456	526	327	389	456	526
70-74	192	239	290	345	192	239	290	345
75-79	99	120	153	190	99	120	153	190
80-84	40	49	61	81	40	49	61	81
85 and over	12	15	20	26	12	15	20	26
All ages	27 000	30 566	34 553	39 089	26 880	30 044	33 272	36 561
<i>Broad age groups (in thousands)</i>								
0-14	11 924	13 295	14 578	16 009	11 804	12 773	13 297	13 590
15-29	7 126	8 112	9 540	11 027	7 126	8 112	9 540	10 918
30-44	4 412	5 137	5 741	6 457	4 412	5 137	5 741	6 457
45-59	2 387	2 655	3 082	3 736	2 387	2 655	3 082	3 736
60-74	1 000	1 183	1 378	1 563	1 000	1 183	1 378	1 563
75 and over	151	184	234	297	151	184	234	297
All ages	27 000	30 566	34 553	39 089	26 880	30 044	33 272	36 561
<i>Per cent of total population</i>								
0-14	44.2	43.5	42.2	41.0	43.9	42.5	40.0	37.2
15-29	26.4	26.5	27.6	28.2	26.5	27.0	28.7	29.9
30-44	16.3	16.8	16.6	16.5	16.4	17.1	17.3	17.7
45-59	8.8	8.7	8.9	9.6	8.9	8.8	9.3	10.2
60-74	3.7	3.9	4.0	4.0	3.7	3.9	4.1	4.3
75 and over	0.6	0.6	0.7	0.8	0.6	0.6	0.7	0.8
All ages	100.0	100.0	100.1	100.0	100.0	99.9	100.1	100.1

IV. DECLINING-FERTILITY PROJECTIONS (*continued*)

13. VIET-NAM

<i>Both sexes</i>	<i>(a) Moderate fertility decline</i>				<i>(b) Rapid fertility decline</i>			
	1965	1970	1975	1980	1965	1970	1975	1980
<i>Detailed age groups (in thousands)</i>								
0-4	5 174	5 210	5 094	5 312	5 042	4 788	4 366	4 185
5-9	4 472	4 851	4 926	4 854	4 472	4 727	4 527	4 161
10-14	2 670	4 385	4 769	4 854	2 670	4 385	4 647	4 461
15-19	2 687	2 617	4 307	4 696	2 687	2 617	4 307	4 576
20-24	2 974	2 610	2 550	4 210	2 974	2 610	2 550	4 210
25-29	2 732	2 871	2 529	2 481	2 732	2 871	2 529	2 481
30-34	2 370	2 631	2 777	2 457	2 370	2 631	2 777	2 457
35-39	2 053	2 276	2 540	2 692	2 053	2 276	2 540	2 692
40-44	1 759	1 960	2 185	2 450	1 759	1 960	2 185	2 450
45-49	1 485	1 663	1 865	2 091	1 405	1 663	1 865	2 091
50-54	1 226	1 381	1 557	1 758	1 226	1 381	1 557	1 758
55-59	984	1 113	1 264	1 436	984	1 113	1 264	1 436
60-64	756	859	982	1 125	756	859	982	1 125
65-69	542	621	714	826	542	621	714	826
70-74	348	402	468	547	348	402	468	547
75-79	194	222	262	312	194	222	262	312
80-84	83	99	117	141	83	99	117	141
85 and over	27	34	42	51	27	34	42	51
All ages	32 536	35 805	38 948	42 293	32 404	35 259	37 699	39 960
<i>Broad age groups (in thousands)</i>								
0-14	12 316	14 446	14 789	15 020	12 184	13 900	13 540	12 807
15-29	8 393	8 098	9 386	11 387	8 393	8 098	9 386	11 267
30-44	6 182	6 867	7 502	7 599	6 182	6 867	7 502	7 599
45-59	3 695	4 157	4 686	5 285	3 695	4 157	4 686	5 285
60-74	1 646	1 882	2 164	2 498	1 646	1 882	2 164	2 498
75 and over	304	355	421	504	304	355	421	504
All ages	32 536	35 805	38 948	42 293	32 404	35 259	37 699	39 960
<i>Per cent of total population</i>								
0-14	37.9	40.3	38.0	35.5	37.6	39.4	35.9	32.0
15-29	25.8	22.6	24.1	26.9	25.9	23.0	24.9	28.2
30-44	19.0	19.2	19.3	18.0	19.1	19.5	19.9	19.0
45-59	11.4	11.6	12.0	12.5	11.4	11.8	12.4	13.2
60-74	5.1	5.3	5.6	5.9	5.1	5.3	5.7	6.3
75 and over	0.9	1.0	1.1	1.2	0.9	1.0	1.1	1.3
All ages	100.1	100.0	100.1	100.0	100.0	100.0	99.9	100.0







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