Department of Economic and Social Affairs

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The World Population Situation in 1970



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Preface

This is the first in a series of reports on salient features in the world population situation. As recommended by the Population Commission¹ and endorsed by the Economic and Social Council (resolution 1347 (XLV), such reports "should aim at presenting the most up-to-date picture possible of population growth rates, fertility levels and trends, mortality levels and trends, including infant mortality, changes in age structure, urban and rural distribution, educational levels, economically active population, and future population prospects for the world and its main regions". A provisional version of the present report was reviewed by the Population Commission and, subject to amendments and up-dating, recommended for publication. The essential information in this report also is contained in A Concise Summary of the World Population Situation in 1970.²

iii —

¹ Official Records of the Economic and Social Council, Forty-fourth Session, Supplement No. 9.

² United Nations publication, Sales No.: E.71.XIII.2.

CONTENTS

									Page
INTR	RODUCTION	60		- 20				100	1
_									
I.	HISTORICAL PERSPECTIVE	•	•	• •	•	·	•	·	3
	 A. Overview of world population growth, 1750-2000 B. Demographic transitions C. Set backs and uncertainties 	•	•	• •	• •		•	•	3 5 7
	D. The 1960s within the wider context	•	•	-	•••	•	•	•	11 13
	F Growth and environmental change	•	•	•			•	•	14
II.	Fertility	•	·	•	• •	•	•	·	17
	A. Availability of data and estimates	•	•	•	 	•			17 18
	C. Age-specific fertility rates								20
	E. Regions of high fertility	•	:	:	· ·	•			24
	F. Present indications of fertility decline in high-fertility	reg	io	ns				•	29
III.	Mortality								31
\	A. Availability of data and estimates								31
\times	B. Global trends, 1960-1970	•	•	•					31
1	D. Regions of low mortality		•	•	· ·			•	35
Ļ	E. Regions of moderate to high mortality								36
	F. Areas of special progress, 1960-1965.	•	•	•		·	•	•	38
IV.	NATURAL INCREASE.		•				•	•	40
	A. Availability of data		•	•				٠	40
	C. Country trends.		•	:	· ·	•	•	•	40
v	POPULATION PROSPECTS								45
••	A Availability of population projections	•	•					·	45
1	B. Global trends, 1960-2000	•			· ·	•		•	45
X	C. Trends in fertility and mortality			•				·	48
	D. Trends in age structure and functional groups.	•	•	•	•••	·	ć	•	50
VI.	$T\ensuremath{Rends}$ and $\ensuremath{Population}$.				• •				53
	A. Problems of concept and available data				· ·				53
	B. Global trends, 1950-1960	•	•	•	•••		·	·	- 55 - 58
	D. Tentative projections			•	•••	•	•	•	61
VII.	POPULATION POLICIES								67
	A. Influences on population growth and distribution								67
	B. Spread of family planning as an instrument of national C. Mandates of the United Nations and the specialized a	poj ger	pul	ati es	on	pol	icy	/.	68 73
	D. Assistance rendered to Governments by the United Na	itio	ns	an	d t	he	sp	e-	76
	Conclusion	•	•	•	• •	·	•	·	70

- V ---

Figures

		Page
1.	Estimated and conjectured trends in birth and death rates, 1750-2000	8
2.	Age-specific birth rates in six countries with typical patterns (around 1965) .	21
3.	Per cent of total fertility contributed by women in each five-year age group in six typical countries (around 1965).	22
4.	Trends in crude birth rate, crude death rate and natural increase in selected countries, 1960-1965	43
5.	Population of inland cities and seaport cities of 500,000 or more inhabitants, 1950-1960	60

INTRODUCTION

1. This being the first report of its kind, the worldwide picture of the population situation is reviewed in its broadest terms. As one special feature, newly revised population projections to the end of the century are presented. As another feature, an attempt is made to place the present decade into a wider historic perspective. Attention is given to the recent emergence of deliberate governmental policies directed at population change, especially family planning policies.

2. The recent interim revision of population projections is to be superseded again, a few years hence, when the results of numerous censuses to be taken in and after 1970 have become available for analysis. On the same occasion, recent assessments of fertility and mortality trends, and the rising urbanization levels, will be measured afresh. It will have to be recognized that many of the present assessments, for the lack of new censuses, are of a provisional nature.

3. As now seen, the 1970s may well be the decade of the fastest world population growth ever to be attained. This is the consequence of sharp recent mortality declines, especially in the less developed regions, while in the same regions fertility has remained at its high level. A marked acceleration of population growth occurred in the now more developed regions during the second half of the past century. A much sharper acceleration occurred in the now less developed regions since about the middle of the present century. It is an unprecedented situation of unforeseeable consequences. Whereas a gradual slowing-down of world population growth is anticipated for the latter part of the present century, a long time will elapse before population growth will be at a moderate rate again. By that time, however, the world population total - especially the total for the less developed regions — will still be greatly increased. Whether, when, or at what level population growth will ever be stabilized cannot now be foreseen.

4. The dynamics of this growth are strongly conditioned by the population age structures. In the more developed regions, where fertility declines some time ago, there is now a rising and fairly high proportion of people of advanced age. This is a situation which even under the best health conditions sets a lower limit to the corresponding crude death rate. In the now less developed regions, even should fertility decline soon to a significant extent, the high proportion of young persons will remain high long enough to reduce death rates to exceedingly low levels - lower than those now prevailing in the more developed regions. This effect will become more pronounced with improvements in public health services in the less developed regions. The low crude death rates which can be expected for the less developed regions will cause their populations

to grow rapidly for at least several decades until the fertility decline produces a fundamental alteration in age structure.

5. In the less developed regions the fertility level, whether measured by birth rates or in other ways, is now twice that in the more developed regions. In fact, few indicators discriminate more sharply between more developed and less developed regions than does the birth rate. Where large populations such as those of Africa, Asia and Latin America are concerned, there is as yet little indication of any impending change. In some peripheral areas of lower populations, however, fertility declines have come into evidence. Such areas are China (Taiwan), Mauritius, Singapore, some of the Caribbean islands, and a few others. The view is taken here that with time, though by no means rapidly, similar fertility decreases will spread to other areas containing larger populations.

6. Decreases in the mortality level have been the forerunners of fertility decline in the more developed regions. In these regions, mortality decreased gradually with the spread of medical and sanitary knowledge, general education, rising living levels, and eventually concerted action to eradicate the major killing diseases. Among less developed regions, where mortality is now decreasing with the application of accumulated and more up-to-date knowledge, the fastest mortality declines again have been observed in those peripheral areas in which fertility decline is now in progress. The slower mortality decline in the large populations of Africa, Asia and Latin America, therefore, may eventually also be followed by gradual decreases in fertility. This assessment takes into account the adoption of family planning policies in many nations, including those with the largest populations.

7. Present assessments lead to the view that the world's population, about 3,600 million in the year 1970, may attain 6,500 million by the end of the century, and that at that time it will still be growing rapidly. In this total, the population of more developed regions, about 1,100 million in 1970, may rise to 1,500 million, and that of the now less developed regions may rise from its present 2,500 million to an eventual 5,000 million; that is to say it may double within this thirty-year period.

8. Concurrent with this unprecedented growth in sheer numbers of the population there is also an enormous growth in urban population. It is calculated, from the basis of 1960 censuses and other data, that the urban population may increase from 1,000 million in 1960 to 3,000 or more million in the year 2000. The urban population of more developed regions, 600 million in 1960, may double to 1,200 million. The urban

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population of less developed regions, 400 million in 1960, may meanwhile grow five-fold to attain 2,000 million by the century's end.

9. Despite this enormous growth in urban population, the rural population will continue growing, and by rising amounts. But the growth in rural population will be unequally distributed throughout the world. In the more developed regions, where rural population is already considerably exceeded by the urban, it may decrease gradually. In the less developed regions, where levels of urbanization are still low, the rural population may rise from 1,600 million in 1960 to nearly 3,000 million in the year 2000. 10. Population policies, as now conceived, are mostly concerned with the moderation of fertility through family planning methods. In the most recent years, the number of countries entertaining such policies has greatly increased. Yet there are countries of low population density in which rapid growth is desired and no such policies are now envisaged. In the more developed countries, population policies are designed mainly in response to social needs, and they may simultaneously include assistance in birth control and encouragement for families which lack the material means to have more children. The impact which the varied policies may have on population growth cannot be easily calculated.

I. HISTORICAL PERSPECTIVE

3

A. Overview of world population growth, 1750-2000

11. To appreciate how crucial the present juncture is in the progress and development of the human species, it may be helpful to view current conditions within a broader time perspective, including recent history and some future speculations. Because of the present bifurcation of demographic and other developments between two groups of world regions, this may be done by distinguishing between the trends in presently "more developed" and "less developed" regions.¹ This distinction is not permanent, but it accords with current economic, demographic and social concepts. By the standards of earlier centuries, for instance, different parts of the world could often have rated as the world's most developed regions. Other differentiations may gain relevance in the future. At present, however, the economic, social and demographic differences between the two sets of regions are very marked.

12. It is unfortunate that for large parts of the world the documentation of past numbers of the population is of uncertain accuracy and leaves many gaps. An approximate picture of population trends in the past two centuries can be assembled, but the margins of error are wide. Even at the present time, the population statistics in several countries are imprecise or debatable.² The uncertainties of the future, not yet experienced, are far greater. The future can be viewed only by means of projections from past trends, more or less detailed by their components, and permitted to vary according to assumptions which appear reasonable. The farther the future, the more speculative become such calculations. Thus, the last published population projections of the United Nations, according to their "medium" variant, came to a total world population of 6,130 million in the year 2000.3 In the present interim revision of those projections (Population Division Working

³ World Population Prospects as assessed in 1963 (United Nations publication, Sales No. : E.69.XIII.3).

Paper No. 30) the end-century total comes to 6,494 million. In each instance, wide margins of error must be allowed.

13. A possible picture of population trends from 1750 to the year 2000 is presented in table 1. These estimates are according to studies of Durand ⁴ except that revised totals and projections from 1950 to 2000 have been substituted. For past dates, Durand also allowed wide margins of error ⁵ but it should suffice here to make use of the "medium" variants of all estimates.

14. Since nothing can grow forever within a limited space, an eventual cessation of world population growth must be anticipated. However, for reasons which will become apparent further on, such developments lie in the too distant future to permit more detailed speculation. An estimate for the year 2050 was produced, for speculative purposes, by the Organisation for Economic Co-operation and Development (OECD). ⁶

15. The contemplation of an eventual cessation of population growth raises philosophical problems. Differences among world regions will probably persist, hence the world trend, at any time, will be an average of regional trends. A constant world total would then imply that population increases in some parts — however moderate or temporary — would have to be compensated by corresponding decreases in other parts. This makes it debatable what international conditions can be consistent with a cessation of world population growth.

16. The figures assembled in table 1 are perhaps the most reasonable assessments which can be made with present knowledge (more detailed population projections for years up to 1985 are given in chapter IV). But they are a combination of fact and fiction. Fact certainly predominates over fiction in the estimates pertaining to the present century. Fairly solid facts also constitute much of the background for preceding century. The view of the future is conditioned by the more distant assumption of an eventual cessation of

¹ Here, the "more developed" regions comprise Europe, the Union of Soviet Socialist Republics, the United States and Canada, Japan, Temperate South America, and Australia and New Zealand. All the rest of the world is combined in the "lessdeveloped" regions. When individual countries are considered, it remains to be noted that Israel (in Asia) is also more developed, whereas Albania (in Europe) and Paraguay (Temperate South America) are less developed.

² In 1960 it was suggested that the current estimate of world population might easily be in an upward or downward error of more than 50 million; "How well do we know the present size and trend of the world's population?", *Demographic Yearbook*, 1960 (United Nations publication, Sales No.: E/F.61.XIII.1).

⁴ J. Durand, "The modern expansion of world population", Proceedings of the American Philosophical Society, Vol. III, No. 3, June 1967.

 $^{^{5}}$ Durand's world population estimate for the year 1750 varies from 629 to 961 million. In *World Population Prospects*, op. cit., the total for the year 2000 was assessed at between 5,449 and 6,994 million.

⁶ Using World Population Prospects, op. cit., and a speculation that growth may cease by the year 2100, OECD suggested that by the year 2050 the population of presently more developed regions may total 2,000 million and that of presently less developed regions 9,000 million. See OECD, The Food Problem of Developing Countries, Paris, 1967.

				Population	(millions)	Perce	entage
	Year		World total	More developed regions	Less developed regions	More developed regions	Less developea regions
1970.			3,631	1,090	2,541	30.0	70.0
1750.			791	201	590	25.7	74.3
1800 .			978	248	730	25.6	74.4
1850.			1,262	347	915	27.7	72.3
1900 .			1,650	573	1,077	34.7	65.3
1950 .			2,486	858	1,628	34.5	65.5
2000 .			6,494	1,454	5,040	22,4	77.6
2050)	·		(11,000)	(2.000)	(9,000)	(18.2)	(81.8)

TABLE 1. ESTIMATES AND CONJECTURES OF PAST AND FUTURE POPULATION OF THE WORLD, AND OF THE CURRENTLY MORE DEVELOPED AND LESS DEVELOPED REGIONS, IN 1970 AND DURING 1750-2000

Sources: 1750-1900 according to J. D. Durand, "The modern expansion of world population", *Proceedings of the American Philosophical Society*, vol. 111, No. 3, June 22, 1967; 1950-2000 according to United Nations interim revision of population projections; 2050 according to OECD, *The Food Problem of Developing Countries*, Paris, 1967.

growth, neither abrupt nor catastrophic. In this combined view, population trends are less certain in the less developed regions.

17. The more developed regions, comprising over 1,000 million people in 1970, now have five times the population of two centuries ago; that population may still increase by about one-third by the end of this century. In the less developed regions, inhabited by more than 2,500 million people in 1970, the present population is about four times what it was in 1750. But this may still double by the century's end if the assumptions are borne out. Because of a different timing of the phase of maximum growth, a period existed, roughly from 1900 to 1950, when the world's currently more developed regions comprised more than one-third of the numbers of mankind, though in the eighteenth century they contained only about one quarter. By the end of this century, the world share of the more developed regions may again have shrunk to one quarter, and in the coming century it may shrink to an even smaller fraction.

18. The changing momentum of growth in the population of the world, and in the two sets of regions, is outlined in the figures in table 2. The first three columns show, for each of the intervening half centuries, the average annual amounts of population growth, in millions. The last three columns show the average annual rates of population growth, per 1,000 persons.

19. To review the present status, first of all, the average increments estimated for the 1960-1970 period — shown in the first row — should be considered. In this decade, the average annual increment in the world's population has been of the order of 65 million, of which not much more than 10 million was in the more developed regions, and 54 million in the less developed regions. But as the base populations themselves are growing, and the rates of growth are not yet diminishing very conspicuously, average annual increments keep on rising. Relative to the average size of the population in the period, those increments are at annual rates of 20 per 1,000 for the world, the net result of a rate of 11 per 1,000 in the more developed regions, and

TABLE 2. AVERAGE ANNUAL POPULATION GROWTH OF THE WORLD, AND OF CURRENTLY MOREDEVELOPED AND LESS DEVELOPED REGIONS, 1960-1970, AND HALF CENTURIES FROM 1750TO 2000

(Absolute amounts in millions; relative amounts per 1,000 each year)

		Absolute increase	?5		Relative increase	s
Period	World total	More developed regions	Less developed regions	World total	More developed regions	Less developed regions
1960-1970	65	11	54	20	11	24
1750-1800	4	1	3	4	4	4
1800-1850	6	2	4	5	7	5
1850-1900	8	5	3	5	10	3
1900-1950	17	6	11	8	8	8
1950-2000	80	12	68	19	11	23

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a rate more than twice as high, namely 24 per 1,000, in the less developed regions.

20. Relating the current status to the long-run trend, the following observations can be made.

21. In periods up to about 1850, annual increments in the more developed regions amounted to about one or two million inhabitants, followed by a quantum jump since in the latter part of the nineteenth and the first half of the twentieth century, annual increments attained the order of five or six million. This was largely a result of health improvements and declining death rates while birth rates at first underwent little change. A very extensive literature exists on this subject, and the phenomenon has variously been referred to as the "demographic transition" and also the "demographic revolution".7 Nevertheless, even larger annual popuation increases, such as eleven or twelve million, are apt to occur in these combined populations for several decades if the speculative condition is borne out that there will be no further radical change.

22. In the combination of less developed regions, in periods up to the present century, average annual additions to the population can be calculated in the order of three or four million. A spurt also occurred here after 1900 when the estimated average increase rose to eleven million per year. In these combined regions however, a far greater quantum jump can be noted from about 1950 onward, and for the remainder of this century the annual growth may attain an average of 68 million. The speculative view into the more distant future suggests even larger annual increases for at least several more decades.

23. If the speed-up appearing in more developed regions after 1850 can be called a revolution, a more forceful term seems appropriate to describe the far greater acceleration — since about 1850 — in the population trend of the less developed regions. In fact, so strong a term as "population explosion" has gained much currency, and this should be no cause for surprise because the unprecedented magnitude of this new phenomenon is indeed baffling.

24. For purposes of calm reflection — and this is necessary in any consideration of rational policy it is preferable to abstract from emotional undertones which strong terms rather inevitably elicit. Any social policy, furthermore, as it is concerned with human beings, must have an appropriate humanistic motivation. The living matter of human flesh, and the historic, social and cultural factors of human interaction, are not chemical substances of the type which can "explode" in the scientific meaning of that word. The phenomenon, admittedly a very dramatic one, will have to be viewed with the sympathy appropriate to the condition of man.

25. The accelerations are less extreme when they are measured in rates, that is, amounts of growth relative to the increased population sizes themselves. As we consider the last three columns of table 2, the picture may appear less frightening though it still gives much cause for concern.

26. In the more developed regions, an upswing of population growth in the eighteenth and nineteenth centuries from annual rates averaging 4 per 1,000 to annual rates averaging 10 per 1,000 may be noted. The slightly lower figure for 1900-1950, namely 8 per 1,000, is affected by set-backs, notably the two great wars, without which the rate might have come to a higher average. A rate averaging about 10 per 1,000 may still result in these regions to the century's end, followed perhaps by a gradual subsidence of growth in the century to follow.

27. In the less developed regions, taken as a whole, population growth was also at a moderate level in the eighteenth and nineteenth centuries. In fact, it even receded. Most particularly, the reduced increase during 1850-1900 reflects the staggering population loss suffered in China as a direct consequence of the Tai-ping Rebellion (1850-1864). In the first half of the present century, the rate of population growth in less developed regions rose to a par with that of more developed regions, namely 8 per 1,000 per year. An enormous acceleration occurred around 1950, making it likely that the rate may average 23 per 1,000 in the remainder of this century. This is unparalleled by any previous experience — "revolutionary" though it may have been called — in the mode developed regions.⁸ The assumed tapering-off population increases in the century to follow would have to be far more rapid and considerable than that still required in the more developed regions if increases in numbers should eventually come to an end.

B. DEMOGRAPHIC TRANSITIONS

28. Leaving aside emotional designations, no disagreement will be provoked if it is noted that "transitions" have indeed begun in recent population trends, one beginning in the nineteenth century in the more developed regions and another, of much greater magnitude, in the present century in the less developed regions. These transitions are unique when related to all of human history: much lower rates of mortality have now been reached than could have ever been attained with the limited medical and sanitary knowledge of the past; a higher tempo of population growth is thus attainable than has ever been possible before. Nevertheless, these are not the only large "transitions" of demographic history.

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⁷ The term "revolution" seems applicable because (a) never before has mortality been reduced to such low levels, and (b) never before has fertility been brought to such an extent under conscious control. Of course, this is not a "revolution" in the sense of an organized collective action inspired by an identifiable leadership. Rather, if that term can be used, it is a revolution in the realm of thoughts, ideas and feelings, possibly affecting many spheres of human life and motivations. Among its various symptoms are also the mentioned demographic observations.

⁸ Population grew even more rapidly in the United States of America, Canada, Australia and New Zealand during parts of the nineteenth century. These populations were then small, having high rates of natural increase, and the rate of migratory inflow was high in relation to the size of the population.

29. Over the many thousands of years of man's existence on earth, even an extremely low rate of annual increase could have resulted in a population as large as the present one. It is probable, however, that conditions varied greatly from place to place, that they were subject to many fluctuations of shorter or longer duration, and that recurrent phases of population growth were often offset by population losses of similar magnitude. Not enough detail is known to document this statement for prehistoric times but it is reasonable to assume alternations between growth and setbacks. The schematic view of a constant very low rate of growth would be decidedly fallacious.

30. It has been estimated that before the emergence of settled agriculture the world's entire human population may have been within the limits of perhaps, 5 to 10 million individuals.⁹ With more elaborate social organization, when large States, and eventually great empires, came into existence, much larger populations could also be sustained, such as the estimated 200 to 400 million inhabitants of the world about the beginning of our era. Many vicissitudes were involved, however, before organized communities grew to such sizes. Recurrent warfare, famine, epidemics, and the enslavement of subject peoples probably held the long-term rates of population growth within narrow bounds. But there were also important historic phases of considerable increase.

31. It is known, for instance, that substantial population growth occurred in the Roman Empire during the first two centuries of our era,10 repeatedly in China about the onset of each new powerful dynasty,¹¹ and in Western and Central Europe from the eleventh to the thirteenth centuries.¹² Large population losses were sustained with the appearance of bubonic plague in the Occident both in the sixth and fourteenth centuries,13 and with the spread of disease and social disorganization in the indigenous population of the Americas upon the arrival of European conquerors, early in the sixteenth century.¹⁴ Repeated invasions and conquests from the semi-nomadic regions of inner Eurasia towards Eurasia's east, west and south, most spectacular perhaps that of the Mongols in the thirteenth century, resulted in much destruction of cities and fertile farmlands.¹⁵ The disrepair of previously extensive irrigation

works, for instance in central and western Asia in the twelfth century, may have been another large cause of population setbacks.¹⁶ Slave raids in the eighteenth and nineteenth centuries, particularly in Western Africa, had depopulating effects, and whether in antiquity or more recent times, populations maintained in a state of slavery had a decreasing tendency owing to low rates of reproduction.¹⁷ Mention is to be made also of the large devastation caused by the Thirty Years' War in Europe (1618-1648)¹⁸ and the at least equally drastic consequences of the Tai-ping Rebellion in China (1850-1864).¹⁹ Nevertheless, all the population losses to which reference can be made have again been offset by renewed growth.

32. Under all historic conditions both the birth rates and the death rates were undoubtedly very high when measured by modern standards, but their levels were far from uniform. Death rates lower than, say, 30 per 1,000 per year, were probably rare, and even in the absence of calamities they may more often have averaged between 35 and 40 per 1,000. Birth rates, under pre-modern conditions, would not often have been lower than, say, 35 per 1,000, and rates in the wide range between 40 and 50 per 1,000 probably were typical. These variable combinations of rates, under comparatively settled conditions, were conducive to more or less significant rates of growth.²⁰ According to records, the population of China may have grown at an average annual rate of 10 per 1,000 during 1750-1800, and China's population may have more than doubled between 1750 and 1850 despite a progressive slackening in that rate.²¹ Such phases of growth may also have occurred elsewhere and at other times in more or less distant history. Nevertheless, in the entire first 1,750 years of our era the world's population may have grown not much more than two-fold, making it evident that phases of growth must have alternated with periods of considerable losses.

33. It can therefore be accepted that "demographic transitions" of one type or another probably occurred often in history, and that at times they played a major role in economic and political change. Sometimes the population increase may have made demands on the utilization and distribution of resources which could not be well met within a rigid institutional framework,

⁹ Marston Bates, *The Prevalence of People* (New York, Scribners, 1955), p. 283.

¹⁰ E. Cavaignac, "Notes de démographie antique", *Journal de la Société de Statistique de Paris* (Paris, janvier 1935), 76:4-9.

¹¹ T. Chen, "Population in modern China", *The American Journal of Sociology* (USA, July 1946), Vol. LII, No. 1, Part 2. ¹² Josiah C. Russell, "Late ancient and medieval population",

Transactions of the American Philosophical Society (Philadelphia, June 1958), 48(3):3-152.

¹³ Josiah C. Russell, "That earlier plague", *Demography* (Chicago, 1968) 5(1):174-184.

¹⁴ Angel Rosenblat, *La población de América en 1492; viejos y nuevos cálculos*. Mexico, D.F., El Colegio de México, 1967), p. 100.

¹⁵ Owen Lattimore, *Inner Asian Frontiers of China* (New York, American Geographical Society, 1940), p. 585.

¹⁶ A. P. Usher, "The history of population and settlement in Eurasia", *The Geographical Review* (USA, January 1930), 20:110-132.

¹⁷ George W. Roberts, *The Population of Jamaica* (Cambridge University Press, 1957), p. 356.

¹⁸ Günther Franz, Der Draissigjährige Krieg und das Deutsche Volk: Untersuchungen zur Bevölkerungs und Agrargeschichte. Third enlarged edition (Stuttgart, G. Fischer, 1961), p. 114.

¹⁹ Ping-ti Ho, *Studies on the Population of China*, 1368-1953 (Harvard East Asian Studies, 4) (Cambridge, Harvard University Press, 1959), p. 373.

 $^{^{20}}$ Under prehistoric conditions, when social organization was still crude, birth rates and death rates, may both have fluctuated between 50 and 80 per 1,000, according to some investigations.

²¹ J. D. Durand, "*The population statistics of China*, A.D. 2-1953", *Population Studies* vol. 13, part 3 (London, March 1960), pp. 209-256.

thereby causing disturbances, imbalances and consequent reversals. At other times, the institutional setting may have been responsive to pressures, promoting innovation, social change, technological invention, new modes of organization, and so forth, thus permitting the accommodation of a growing population under improving conditions. But any generalization concerning the favourable or unfavourable effects of population growth remains unwarranted unless the cooperation, or antagonism, of other cultural, political and social factors is also taken into account.

34. The modern "transitions" differ because lower mortality levels are now possible. Since it has become known that many means exist to protect health and postpone death, it is difficult to imagine that the benefits of such knowledge will be permitted to lapse. In all probability, efforts to minimize mortality will persist. But nothing can grow for ever, hence an attenuation of population growth is inevitable in the long run. If this is not to result from unavoidable disasters, it will depend on decreases in birth rates commensurate with those which have already occurred, and may still occur, in the death rates. Shortcomings in human ingenuity or good will may indeed provoke disasters, but such premises are unfruitful in a contemplation of future human requirements. In a more hopeful spirit, it should be possible to put into effect such economic and social improvements that inevitably increasing numbers of the population can still be accommodated, pending the eventual slow-down of population growth from causes which are not calamitous. When, whether and how this can come about are difficult questions, and the record of past experience provides only limited guidance. Much of the transition, in terms of eventually

reduced birth rates, has already been completed in the more developed regions. But as has been shown that a far greater "transition" is yet to be made in the less developed regions.

C. Set-backs and uncertainties

35. Referring again to the population estimates of table 1 and to the implied rates of growth of table 2, the attempt is now made to present the corresponding birth rates and death rates. It must be stated at once that these cannot be estimated with close approximation, especially for the less developed regions, except for recent years. The approximate birth and death rates shown in table 3, while utilizing the known facts, are to a large extent an exercise in bringing together seemingly plausible figures consistent with each other, with the estimated rates of growth, and with what is generally known about historic conditions.²² As for the future, it has already been mentioned how speculative that is.²³

 $^{^{23}}$ If population growth is ever to cease, the birth rate would then have to equal the death rate of a stationary population. Should this occur while presently available medical knowledge is fully utilized in every part of the world, the death rate might be 13 per 1,000. This is higher than many death rates at the present time, because in such a stationary population there would be a high proportion of older people. The birth rate would then also have to be about 13 per 1,000. This speculative figure is mentioned for an evaluation of the significance of the trend estimates shown in table 3.

Table 3. Estimated and conjectured average annual birth rates, death rates, and rat	res
OF NATURAL INCREASE FOR CURRENTLY MORE DEVELOPED AND LESS DEVELOPED REGIO	NS,
1960-1970, and selected periods from 1750 to 2000	·

Rates	per	1,000	per	year)	
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	Mo	re developed r	egions	Less developed regions				
Period	Birth rate	Death rate	Natural increase	Birth rate	Death rate	Natural increase		
1960-1970	20	9	11	41	17	24		
Half centuries								
1750-1800	38	34	4	41	37	4		
1800-1850	39	32	7	41	36	5		
1850-1900	38	29	9	40	38	2		
1900-1950	26	18	8	41	32	9		
1950-2000	20	10	10	37	14	23		
Decades								
1900-1910	34	21	13	41	34	7		
1910-1920	26	23	3	40	37	3		
1920-1930	28	16	12	41	31	10		
1930-1940	22	14	8	41	29	12		
1940-1950	20	15	5	40	28	12		
1950-1960	22	10	12	43	22	21		
1960-1970	20	9	11	41	17	24		
1970-1980	19	9	10	38	13	25		
1980-1990	19	10	9	34	10	24		
1990-2000	18	10	8	29	8	21		

²² More detailed research than was possible for the present purpose might lead to some modification of the figures, especially those of the more remote past.



8

36. The rates of table 3 have also been graphed in figure 1 for better visualization. Because of obvious uncertainties in estimates, the rates in the more distant past are indicated as half-century averages only, whereas for the present century these are shown by decades. The estimates also take into account the probable consequences of untoward events of 1850-1865 such as the Tai-ping Rebellion, the Indian Mutiny, the Crimean War in Russia, and the Civil War in the United States. The actual numbers of lives lost in those events are not known with any accuracy.²⁴

1. Set-backs

37. Aside from a momentous long-term trend, the graphs in figure 1 show important fluctuations. To a large extent, though not entirely, these are related to wars, especially during 1850-1865, 1914-1918, and 1938-

1945. The effect of war on population trends consists not only of the casualties caused by military action. In addition to deaths caused by war, other normally avoidable deaths occur. War may cause disorganization in food supplies the neglect of public-health measures, or the spread of uncontrolled epidemics (such as the world-wide influenza epidemic of 1918-1921). Furthermore, during a period of warlike action, fertility is reduced. But it is possible that some of the births, postponed during war or disorganized times, are recuperated in a subsequent "baby boom".

38. Broken lines are shown in figure 1 to suggest the trends which might have occurred in the absence of the warlike events. Declines in mortality might have been more continuous, and birth rates might not have fluctuated so much. Very schematically, the effects of the wars can then be estimated by comparing actual population growth with that which would have occurred if the trends had remained unbroken. But it is a strictly hypothetical exercise to calculate how the world's population might have grown if there had been no wars, say, since 1850. If peace had prevailed during all that time, technological and social changes

²⁴ According to some sources, about forty million lives were lost in the Tai-ping Rebellion. It can also be assumed that such disturbances caused temporary reductions in the frequency of births.

might have occurred at different rates and led to other developments than those which we know. The world today might have come to differ from the actual one in ways which are incalculable. Nevertheless, the schematic calculation is of interest, hence a few results may be mentioned.

39. Assuming an unbroken peace since 1850, the population of more developed regions could have reached about 750 million and that of less developed regions to more than 1,300 million in the year 1920; these figures are quite close to our actual population estimates for 1930. Continued to 1960, the abstract calculation suggests a population of 1,150 million for the more developed, and nearly 2,400 million for the less developed regions; these two figures come close to our present estimates for the year 1970. In other words, the effects of successive wars have accumulated, but population growth has also accelerated. Consequently it can be estimated that the warlike setbacks have delayed the world's population growth by about ten years. It should be recalled that probable changes in other circumstances, perhaps with notable demographic effects, cannot be included in such a calculation.

40. An extensive study has been made of war losses of military personnel in Europe (see table 4). In the entire period from 1600 to 1945, about 54 million

persons died in military service, of whom about 4 million died of natural causes and about 50 million from deaths in battle, wounds, diseases, maltreatment in captivity, unfortunate accidents, and other war-induced causes.²⁵ Distinguishing periods of most intensive warfare from others, notably the revolutionary and Napoleonic wars of 1789-1815, and the wars of 1914-1918 and 1939-1945, the numbers and rates of military deaths, including some from normal causes, can be inferred from table 4.26 A large proportion of military deaths in the general death rate of Europe can be noted in the present century, as also the fact that population compositions by sex and age are greatly affected since most of the military persons were young men. The figures do not include deaths in the civilian population. It is possible that war-induced mortality among civilians was large not only in recent wars, in which civilians themselves

										Deaths of	military persons	Average total	Annual military		
	Period								Entire period (million)	Average per year (thousands)	population of Europe (million) ^a	deaths per 1,000 total population			
											. fer al 18700	odis ana era	rable disast		
1600-1699 .										3.3	33	100	0.3		
1700-1788.								۰.		3.9	44	130	0.3		
1789-1815.										5.0	185	185	1.0		
1816-1913										2.2	22	275	0.1		
1914-1918 ъ										9.1	2,132	400	5.3		
919-1938.										2.2 °	110 c	425	0.3 °		
1939-1945 .	•									30.0 d	5,000 d	450	11.1 ^d		

TABLE 4. INCIDENCE OF DEATHS OF MILITARY PERSONS IN THE POPULATION OF EUROPE, 1600-1945

* Includes Turkey and some interpolations from estimates in the source.

^b Considered as a period of 4 $\frac{1}{4}$ years.

 $^{\rm c}$ Mostly deaths in civil wars and wars of intervention in Turkey and the Union of Soviet Socialist Republics.

^d Possibly even more, according to the source.

became targets of attack, but also in earlier wars when the general population was severely afflicted by the ensuing epidemics, famines, pillage, impoverishment, and other hardships resulting from economic and social disorganization.

41. A separate attempt should perhaps be made to estimate the effects of famines on population growth, but such a calculation meets with greater difficulties. In historic times, food shortages were often a recurrent phenomenon causing temporary excesses of mortality (also infant mortality) and postponements of marriage and childbirth. Where this adversity recurred it may have to be regarded as a "normal" circumstance of living for that historic period, and one of the factors affecting the "normal" average levels in birth rates and death rates. But then, some of the large outbreaks of famine — even as recently as 1943 and 1944 in Bengal and Tonkin — probably must be considered among the effects of war with its attendant economic and social disorganization. Nor can it be distinguished which deaths are caused directly by starvation and which by an excessive proneness to succumb to various diseases in a state of malnutrition. Major famines have often been followed by an epidemic.

42. Nevertheless, there is undoubted testimony that famines and epidemics can have large demographic

9 -

²⁵ B. Ts. Urlanis, *Voyny i Narodonaselenie Evropy* (Moscow, 1960), p. 421.

²⁶ *Ibid.*, pp. 404-406. The same source also mentions an estimate of at least 3.1 million military casualties of China in its war with Japan (1937-1945), and about 2.0 million military casualties incurred by Japan both in China and in the Pacific War of the same period. *Ibid.*, pp. 236-239. Another important study of this subject is G. Frumkin, *Population Changes in Europe since 1939* (London, 1951).

effects. India and Pakistan, for instance, were struck by disastrous floods with ensuing epidemics in 1876-1878, by famines in 1892 and 1897, and by the influenza epidemic of 1918. These facts are reflected in the intermittent population growth recorded by successive censuses. The combined population of India and Pakistan grew only by 3 to 4 million during the decades of 1872-1881, 1891-1901 and 1911-1921, as contrasted with increases of 24 million during 1881-1891, 19 million during 1901-1911, and 34 million during 1921-1931.27 By indirect inference one must conclude that the demographic effect of famines, also of epidemics connected therewith, has been large.28 On a smaller scale, yet quite well recorded, one may note temporary upsurges of death rates of Europe under the influence of postwar food shortages in 1945. In that year, the death rate in the Netherlands rose to 15.3 per 1,000 (it had been 9.9 in 1940), that of Hungary to 22.6 (14.3 in 1940), that of Austria to 25.6 (14.8 in 1940), and that of Berlin to 55.5 (15.0 in 1940). All told, many hundreds of thousands died in Europe who otherwise might have lived longer. Such hardships prevailed also in the Soviet Union, East Asia and South-East Asia and it would be difficult to estimate the full extent of their consequences.

43. In these instances, and also many others, the ravages of war, famine or epidemic have been devastating indeed. Even so, the setbacks which they caused in population size have often been restored within only a few years by the sheer inertia of normal fertility and mortality trends. Had there been no international violence since 1850, the current population size might have been reached ten years earlier.

44. Because of limitations to human ingenuity and good will, deplorable disasters can also occur in the future. These are not foreseeable nor is their prediction desirable since no rational plans can be made on a prior assumption of their failure. It remains quite evident that the enormous momentum of population growth, as it now prevails, will not be greatly reversed by any disasters unless these attain a hitherto unimaginable scale. For many hundreds of millions are now added to the world population in any ten-year period.

2. Uncertainties

45. The reduction of normal mortality levels is almost certain to persist. Nor will an emigration into outer space, such as to some habitable planet, ever occur at a rate of millions of persons per year. The major uncertainty about this world's future population then pertains to the speed with which fertility may decline, even within the decades which lie immediately ahead.

46. There is a wide latitude within which the possible reduction of birth rates can now be reasonably conjectured. Widely different variants had been drawn up in the United Nations projections to the year 2000, and these differ mostly in respect of the assumed fertility trend. Which of them comes nearer the actual facts may, in turn, determine the developments in centuries to come.

47. Very schematically — and the basis for doing so is almost entirely abstract — one can extend the variants of the United Nations projections up to a point where population growth comes to an end.²⁹ Without any evident inconsistency, this can be conjectured to occur as early as the year 2050 as an extension of the low variant, perhaps by the year 2100 in conformity with the present medium variant, and hardly sooner than the year 2150 as a reasonable extrapolation of the high variant. In successive half centuries, then, the world totals can conceivably attain the following magnitudes (numbers in thousands of millions):

			Y	'ear				Low variant	Medium variant	High variant
1950		,						2.5	2.5	2.5
2000								5.4	6.1	7.0
2050								(7.5)	(11.0)	(16.0)
2100								(7.5)	(13.5)	(28.0)
2150								(7.5)	(13.5)	(35.0)
2200								(7.5)	(13.5)	(35.0)

48. In our vast ignorance of the future, such figures are merely an exercise in arithmetic. Nevertheless, they do reflect some of the dynamics implicit already in the present decades of our experience. Numerous other calculations might be made, leading to different figures, all of them similarly abstract and debatable. Certainly, the combined numbers of mankind will never be exactly stabilized. But whatever other figures one may be venturesome enough to put forth, it remains evident that even within the 1960s and 1970s the changing population trends can cast a long shadow into the future.

49. Past experience in the more developed countries is an uncertain guide concerning the possible speed of future birth rate reductions elsewhere. As shown in table 3, birth rates in those areas have indeed fallen to one-half their earlier average levels within one century, from about 39 per 1,000 around 1850 to 19 or 20 per 1,000 at the present time. The combined reduction has been the result of local and regional decreases occurring at different times and with varied speeds. In some countries, a halving of the birth rate occurred in the interval from one parental generation to the next. In most countries the process was much slower. Since not all the decreases were simultaneous, a century lapsed before the combined group was fully affected.

50. For the combined group of less developed regions, the average birth rate is still estimated near 40 per

²⁷ Figures according to P. K. Wattal, *The Population Problems in India* (Bombay, 1934).

 $^{^{28}}$ According to Wattal, *ibid.*, the influenza epidemic of 1918 may have caused 12.5 million deaths. By inference, one may estimate that deaths caused by the famines of 1876-1878, 1892 and 1897 were almost as numerous.

²⁹ Use is made here of the variants as assessed in 1963. Revised projections have superseded them.

1,000. If the assumption is to be borne out that population growth may cease by the year 2100, this combined rate would have to fall to about 20 per 1,000 no later than in the third decade of the coming century, that is, within the next sixty years. Again it is certain that such declines will not occur everywhere at once, and that they will not attain uniform speeds. Significant decreases in birth rates — such as those now being noted in some smaller countries — will have to become apparent within large populations in the very near future, if this possible view is to gain some substance.

51. The spread of birth rate declines from one area to another is a critical matter in this context. It can be viewed partly as a process of cultural diffusion, and partly as one of economic and social development, including also the recently organized efforts to counteract uncontrolled fertility.

52. Comparatively low birth rates were first attained in Western and Northern Europe, spreading thence to Europe's south and east and into areas of European culture in the Americas, the Soviet Union and Oceania. Thus for a long time the propagation of the new reproductive behaviour seemed to be confined to peoples of one type of cultural traditions — Occidental in the given instance. More recently the decreased fertility in Japan, and most recently the decreases noted in China (Taiwan), Korea and certain limited areas of East and South-East Asia — all in a conspicuous process of economic development — suggest once again that a degree of cultural kinship, East Asian in this instance — can be among the factors facilitating a geographical diffusion.

53. What combination of cultural and social factors is most conducive to the limitation of families, however, cannot be defined without much risk of ambiguity. Previously within the Occidental sphere, now also among peoples of East Asia, family limitation has progressed alongside with advancements in economic and social achievements. It remains probable that comparable levels of economic and social development will be reached in various areas at different times. It is also probable that national family planning programmes will reach satisfactory response in various areas at different times. But even at comparable levels of development, resistance to the adoption of new family norms may vary from one culture to another. Hence the probable speeds and timing of birth-rate reductions among the world's currently less developed regions are still almost imponderable.

D. The 1960s within the wider context

54. In reviewing the present situation more closely, the estimated and projected vital rates in tables 5, 6 and 7 may now be considered. The projections, to repeat, are according to the "medium" variant.

55. As now estimated, birth rates in the more developed regions combined, having averaged 22 per 1,000in the 1950s, may now approach an average of 20 per 1,000, with a slight decrease be expected to the end

of the century. The higher level in the 1950s is associated with a temporary revival of the birth rate in many of these areas after the late war, though in the Soviet Union some European countries and Japan, the birth rates were then much reduced. A more or less marked subsidence of birth rates can be noted in the 1960s in each of the more developed regions. There are no strong indications for much change in the near future except those fluctuations which may be induced by variations in age composition. The lowest birth rates are now those of Europe, Japan, and the Soviet Union; in areas of overseas European settlement (Northern America, Temperate South America, Australia and New Zealand) they are still somewhat higher. It is possible that such a distribution of fertility levels can persist for some time, but also that the remaining differences can diminish further.

56. In the less developed regions, it is also estimated that birth rates of the 1950s were slightly higher than those of the 1960s. The estimates include a conjectured decline in East Asia (without Japan).³⁰ Several of these regions probably experienced a slight temporary increase of their generally high rates in the 1950s, when some of the temporary restraints of the wartime period again were relaxed. In such instances the 1960s may have produced a slight subsidence and this could,

TABLE 5. ESTIMATED AND PROJECTED BIRTH RATES, 1950 to 2000, IN SELECTED REGIONS AND GROUPS OF REGIONS (Per 1.000)

Regions		1950-60	1960-70	1970-80	1980- 2000
More doublered recieve		22	20	10	10
More developed regions	•	22	20	17	10
Europe ^a		20	18	18	17
Northern America		25	21	21	20
Soviet Union	. **	26	20	19	17
Japan	. 1	21	18	18	15
Temperate South America		28	27	25	23
Australia and New Zealand		23	21	22	21
Less developed regions		43	41	38	31
East Asia ^b		39	35	29	22
South-East Asia		46	44	41	32
Middle South Asia		47	45	42	31
Middle East ^e		47	46	44	37
Africa ^d		47	47	46	44
Latin America ^e	÷	44	41	40	36

^a Without the Soviet Union.

^b Without Japan.

° Northern and AfricaSouth-West Asia.

^a Without Northern Africa.

e Without Temperate South America.

³⁰ Many data on age composition, obtained in the 1930s and 1940s, concur that birth rates on the Chinese mainland, on an average, have been moderately but not exceedingly high. Their comparatively moderate and possibly decreasing level is consistent with new population estimates recently published there but it must be admitted that the accuracy of these data remains much in doubt.

have been the case in South-East Asia and Latin America. Except for a possible conjecture in East Asia, however, no important decline in fertility can as yet be registered in any large region. Varying recent trends in the birth rate have caused some minor deformations in the age composition (such as in South-East Asia), hence future fluctuations can also be anticipated, whether or not they coincide with the beginnings of a more substantial downard trend. According to "medium" assumptions, the combination of conditions may produce for the combined areas an average birth rate of 38 per 1,000 in the 1970s, decreasing to an average of 31 per 1,000 for the remainder of the century. This may occur if substantial decreases continue in East Asia and soon also appear in South Asia, in addition to appreciable decreases occurring in Northern Africa and Latin America. The large element of conjecture in this combined picture must be emphasized.

57. Turning now to the estimates and projections of death rates (table 6), we can note a small decrease in the more developed regions from an average of 10 per 1,000 in the 1950s to one of 9 per 1,000 in the 1960s with probably no further decreases thereafter. At the levels of fertility and mortality prevailing in these regions, however, the differences in death rates reflect variations in age composition to a far greater extent than they do variations in mortality risks among people of the same age groups. Because of a progressive aging of the population, the death rate in Europe may no longer fall below 10 per 1,000 and may rise in the future despite further improvements in health conditions. Death rates as low as 7 per 1,000 in the Soviet Union and Japan reflect a rather youthful age structure but this is a transitory phenomenon.

TABLE 6. ESTIMATED AND PROJECTED DEATH RATES, 1950 TO 2000, IN SELECTED REGIONS AND GROUPS OF REGIONS (Per 1,000)

Regions	1950-60	1960-70	1970-80	1980- 2000
More developed regions	10	9	9	10
Europe ^a	11	10	10	11
Northern America	9	9	9	9
Soviet Union	9	7	8	9
Japan	9	7	7	9
Temperate South America	10	9	9	8
Australia and New Zealand .	9	9	8	8
Less developed regions	22	17	13	9
East Asia ^b	21	16	13	9
South-East Asia	23	18	13	8
Middle South Asia	27	19	14	9
Middle East ^c	22	18	13	8
Africa ^d	26	23	18	13
Latin America ^e	14	11	8	6

* Without the Soviet Union.

^b Without Japan.

° Northern Africa and South-West Asia

^d Without Northern Africa.

e Without Temperate South America.

58. In the less developed regions, also because of age structure (the high proportion of children), there is the possibility that the crude death rates can fall to a very low level long before the health conditions become similar to those in the more developed regions. The sharp decrease in the combined average death rate, from 22 per 1,000 in the 1950s to about 17 per 1,000 at present, possibly 13 in the 1970s, and perhaps only 9 later in the century, is thereby partly explained. Mortality is comparatively high in Africa and it may decrease more slowly there, as in that region there is limited access to medical facilities for much of the population. In Latin America by contrast, public health work attained a comparative level of efficiency some time ago. There the future death rates can fall to very low figures even though opportunities for further progress may not be exhausted by the end of the century. While probably decreasing in all the less developed regions, death rates are likely to vary widely among them for some time to come.

59. The rates of natural increase (table 7) result as the net differences between birth rates and death rates. Where the balance of migration is small, they also equal the rates of population growth. For the more developed regions combined, having diminished from 12 per 1,000 in the 1950s, this rate has now shrunk

Table 7. Estimated and projected rates of natural increase, 1950 to 2000, in selected regions and groups of regions $(Per \ 1,000)$

Regions	1950-60	1960-70	1970-80	1980- 2000
More developed regions	12	11	10	8
Europe ^a	9	8	8	6
Northern America	16	12	12	11
Soviet Union	17	13	11	10
Japan	12	11	11	6
Temperate South America	18	18	16	15
Australia and New Zealand	14	12	14	13
Less developed regions	21	24	25	24
East Asia ^b	18	19	16	13
South-East Asia	23	26	28	24
Middle South Asia	20	26	28	22
Middle East ^c	25	28	31	29
Africa ^d	21	24	28	31
Latin America ^e	30	30	32	30

* Without the Soviet Union.

^b Without Japan.

° Northern Africa and South-West Asia.

^d Without Northern Africa.

^e Without Temperate South America.

to 11 per 1,000 and is likely to dwindle further in future decades. The rates may diminish in some of these regions, but because of the decreasing weight of slower-growing regions (notably Europe and Japan) the combined average of the group may show little change.

60. In the less developed regions, as conjectured here, the combined average rate has risen from 21 per 1,000 in the 1950s to 24 per 1,000 in the 1960s, and it may be still higher in the next decade, possibly subsiding to 24 per 1,000 later in the century.

61. The maintenance of this high level of growth in the combined less developed regions is in part due to shifting weights, the weight of the fastest growing areas becoming proportionately larger. According to current projections, the rate for the 1960s may reach a peak in the 1970s in most of these regions and continue to increase through the late twentieth century in Africa and the middle East. An appreciable subsidence of the rate of population growth has been projected especially for East Asia and Middle South Asia, two regions which between them comprise nearly one half of the worlds' population. Whether, when, or how rapidly, birth rates will decrease in those two regions cannot be accurately foreseen, despite the known interest in the matter on the part of the principal Governments in those areas. It is a crucial question, since the future numbers of mankind will be determined to a considerable extent by population trends in those particular areas. It is possible that, with growing experience, the activities designed to facilitate an acceleration of this process will make an effective contribution.

E. MIGRATION AND URBANIZATION

1. International migration

62. Except in a few areas, intercontinental migration has ceased to play an important part in the growth of population. For instance, from 1910-1915, annual immigration into the United States averaged about 600,000, while from 1960-1965, when the United States population had grown twice as large, it averaged only about 400,000.31 In Australia and New Zealand, immigration was still large in relation to population size in the 1950s, and continued at a considerable rate in the 1960s. But in other regions of former European overseas settlement, notably Northern America and Temperate South America, locally born populations have grown large, and though immigrants still arrive, they no longer augment regional population growth to any great extent. Europe, previously a reservoir of numerous overseas migrants, no longer experiences the intense pressures on local resources that compel large overseas movements. Partly this is due to the rise in European levels of living, employment opportunities, social security measures, technological improvements, and so forth. In fact, in recent years there has been an appreciable reflux of return migrants from overseas European settlement areas, while movements into Europe from certain British Commonwealth countries, North Africa and Turkey have also become significant. Northern America continues to receive appreciable numbers of migrants, but the proportion of Europeans among them has diminished while Latin American migrants have become more numerous.

63. The consequence of changing balances in Europe and Northern America is also a partial redirection of migratory flows affecting Latin America. Argentina, Venezuela and Brazil, for instance, still received many immigrants from Europe in the 1950s, but as a result of numerous return movements, now have small migratory balances. The migratory flow from middle American countries and Caribbean islands to the United States has increased, and there has also been a notable migration from the Caribbean to the United Kingdom. Previously positive, Latin America's combined migratory balance has become negligible if not negative.

64. International movements within continents have largely supplanted the earlier overseas movements. The balances of international movements are not easily measured since it is difficult to distinguish between persons arriving or departing for short periods only and those whose change of residence is of a longer duration. There is now much intra-European migration, for instance, but the statistics do not indicate clearly whether the migratory balances between European countries are still rising or whether, as a result of an increased turnover, the balances now tend to stabilize. In some European countries of comparatively low rates of natural increase, migratory balances have had substantial effects on rates of population growth. It can also be noted that large numbers of Southern Europeans now tend to migrate to Western Europe, whereas in the 1950s many migrants of that origin still used to travel to Latin America.

65. There are also large migratory streams among some African countries, partly involving permanent changes of residence, and partly for shorter terms, periodic or seasonal. Few statistics can be found, however, to measure their extent. Among some countries of Latin America, for instance between Argentina and adjacent countries, but also elsewhere, movements across the frontiers are of significance, but there also the pertinent statistics do not render a full account.

66. Movements affecting certain smaller areas have been noteworthy, such as those into Hong Kong, Israel, Kuwait, Singapore and West Berlin. These have fluctuated with political or economic conditions. On the whole, they have become less extensive than they were in the 1950s.

67. It remains to be noted that numerically modest migratory currents — too small to have significant effects on population growth — can sometimes be of much economic and social importance. The recently much discussed "brain drain" is a case in point, as it tends to aggravate the existing imbalances in the availability of intellectual manpower. The promotion of international exchanges of technical personnel, through bilateral and multilateral technical assistance projects, seems to be insufficient to counteract this vicious trend.

³¹ D. J. Bogue, *Principles of Demography* (New York, London, Sydney and Toronto, Wiley and Sons, 1969).

68. The once massive long-range overseas migrations have mostly subsided. Moves over shorter distances, or for shorter durations, have become more frequent. As a means of adaptation to varying local needs and opportunities, the importance of migration is probably as great as it ever was, but its predominant character has undergone much change.

2. Internal migration

69. Considerable geographical population shifts occur within some large countries. Studies on this subject are numerous, diverse, and their systematic survey is not easy.³² One may mention the continuing movements towards the centre, south-west and east in the Soviet Union, the west and south-west in the United States, or the north-east and north-west in China. Brazil experiences a gradual expansion of settlement towards its interior. In West African countries, there is much movement from the interior towards the coast. Considerable movements are also known in other countries, such as the drift from south to north in Italy. The statistics reflecting those geographical shifts are diverse and preclude comparable international measurement.

70. The predominant features of internal migration also have changed greatly. Except in areas under special development, there is now rather little movement for the settlement of hitherto sparsely used lands. More and more conspicuously the movements are between rural and urban areas, between smaller towns and bigger cities, and among big cities in the most urbanized countries. Even the displacements of population among geographical regions are often incidental only to city-ward movements, as the transfers are usually from regions of slower city growth to regions of faster city growth. Some of the highest levels of urbanization have recently been attained precisely in those regions which used to contain areas of extensive land settlement. Instances of this phenomenon are found in the Asian parts of the Soviet Union, the western parts of the United States, north-eastern China, the La Plata area in South America, and south-eastern Australia. The interregional movements, to an increasing extent, have become rural-urban or interurban movements.

3. Rural-urban migration

71. Almost throughout the world the movement from country to city has become the most conspicuous form of migration. Once again, available statistics are inadequate for precise measurement. Urbanization occurs in various forms and it is a complex process which defies any simple assessment. Places can be "urban" or "rural" to various degrees and in various respects once we consider that there are big cities and urbanized regions, and also large numbers of small towns, villages, hamlets and isolated settlements. Movements occur among places of every type, and in their process the features of those places themselves undergo change. Many localities previously considered "rural", for instance, may now have to be regarded as "urban". Nor can one readily assess all movements which produce the migratory balances, considering that many persons also leave their urban residence to return to the countryside. The movements may include short visits, seasonal and other short-period turnovers, attempts to establish an urban residence which may succeed or fail, and also definitive transfers of residence. Sometimes the composition of migratory balances provides special indications. In some countries of Latin America, for instance, many unmarried young women move to towns while in some Asian countries the temporary migrants comprise many married men who sooner or later return to their rural families.

72. For every category of migration, international, among geographical regions, or rural-urban, the statistics are deficient, hence the comparative importance of each cannot be indicated with precision. International and geographical moves can also be rural-urban, originating in a rural locality of one region and directed at an urban locality elsewhere. Nevertheless the general trend of the fragmentary statistics gives evidence that international movement over great distances has diminished in recent decades, movements over shorter distances have become more frequent, and population gains of urban places at the expense of the rural population have accelerated the most. The inertia of such trends may also persist over decades in the future. In the more developed regions this is a continuous process, whereas in less developed regions it has recently gained an unprecedented momentum.

F. GROWTH AND ENVIRONMENTAL CHANGE

73. The two outstanding facts about the world's population in our own century, then, are its accelerated growth and its rapid urbanization. Other changes are also occurring, all of them having major significance, such as the modification in birth rates, death rates and migratory streams, in the population's geographical distribution among countries and regions, its changing age composition, rising levels of education, improved health, and the shift from dependence on agriculture to dependence on other types of economic activity. When all these and various other developments are considered, and also their unprecedented speed and

³² Concerning recent movements in some of the largest countries, the following studies might be cited among others: T. L. Smith, "The role of internal migration in population redistribution in Brazil" (Paper contributed to the World Population Conference, 1965); H. Yuan Tien, "The demographic significance of organized population transfers in Communist China", *Demography No. 1* (Population Association of America, 1964); K. C. Zachariah, "Population redistribution in India". Research Report of United Nations Demographic Research and Training Centre (Bombay, 1964); H. T. Eldridge, Net Intercensal Migration for States and Geographic Divisions of the United States, 1950-1960 (University of Pennsylvania, United States of America, 1965); Geografiya Naseleniya SSSR (Academy of Sciences of the USSR, Nauka Publishing House, Moscow and Leningrad, 1964). Recent movements partly international and partly regional, affecting the industrial area of Western Europe have been examined in H. Wander, "Wanderungen im westeuropäischen Industrieraum im Wandel der Wirtschaft", Weltwirtschaftliches Archiv, Band 97, Heft 2 (Hamburg, 1966).

magnitude in the light of history, one may with justification regard this a revolutionary century. The changes in birth rates and death rates, conditioned as they are by motivations and attitudes within a changing cultural, economic and social matrix, can then be viewed as part of an even wider revolution which ranges into many directions.

74. The subject is so vast that the human mind can scarcely comprehend it in all its interrelated aspects. Let it suffice then, in this summary, to review this century's probable population growth and urbanization in one broad sweep. It will be understood that many other things are also happening concurrently with this process. In this, the distinction between more developed and less developed regions remains of major importance. In addition, it is useful to distinguish Europe, where modern developments are of older date, from other currently more developed regions, namely Northern America, the Soviet Union, Japan, Temperate South America, and Australia and New Zealand.

75. The pertinent figures are brought together in table 9.³³ These indicate for the world as a whole an increase in total population by more than 1,000 million between 1920 and 1960, and by another 3,000 million between 1960 and 2000. The world's urban population,

totalling nearly 1,000 million in 1960, had almost trebled in the preceding forty years, and in the ensuing forty years, to the century's end, may once more increase threefold. The world's rural population, which in 1960 amounted to 2,000 million, had grown by 500 million in the preceding four decades, and may grow by 1,000 million in the following four decades. Thus, between 1920 and the year 2000, the world's total population would grow more than three-fold, its urban population nearly nine-fold, and its rural population would double.

76. Europe's total population, 325 million in 1920, 425 million in 1960, and perhaps 568 million in the year 2000, has been gaining 100 million in the past forty years and may gain more than that number in the next four decades. Virtually all this gain is reflected in Europe's urban population, amounting to 150 million in 1920, 246 million in 1960, and perhaps 437 million at the century's end. Europe's rural population meanwhile may undergo an appreciable decrease.

77. Other more developed regions have been gaining population at a faster rate than Europe, the totals being 350 million in 1920, 551 million in 1960, and perhaps 886 million in 2000. Here, the growth in urban population is considerably faster than in Europe, consisting of a three-fold increase between 1920 and 1960, and more than a doubling between 1960 and 2000. The more rapid urbanization of these regions is also associated with a decline in rural population, already evident in recent decades and likely to become more substantial in the future.

TABLE 9.	ESTIMATES	OF	TOTAL,	URBAN	AND	RURAL	POPULA	TION	IN TH	IE W	WORLD,	Europe,	OTHER	MORE	DEVELOPED	REGIONS,
				AN	ND LE	SS DEVE	LOPED R	EGION	s, 192	0, 1	960 AN	d 2000				

Regions and		Population (mi	llions)	per ent	Percentage of world total in each category			
category of population	1920	1960	2000	1920	1960	2000		
World total								
Total population	1,860 360 1,500	2,982 985 1,997	6,494 3,234 3,260	100 100 100	100 100 100	100 100 100		
Europe a								
Total population	325 150 175	425 246 179	568 437 131	17 42 12	14 25 9	9 13 4		
Other more developed regions b								
Total population	350 110 240	551 336 215	886 742 144	18 31 16	18 34 11	14 23 4		
Less developed regions ^c								
Total population	1,185 100 1,085	2,005 403 1,602	5,040 2,055 2,985	65 27 72	68 41 80	77 64 92		

* Not including the Soviet Union.

^b Northern America, Soviet Union, Japan, Temperate South America, Australia, and New Zealand.

e Rest of the world.

³³ The last published projections of urban and rural population are those in *Growth of the World's Urban and Rural Population*, *1920-2000* (United Nations publication, Sales No. : E.69.XIII.3). Use is made here of recently revised projections, not yet published.

78. But the contrast of developments in these regions with these in less developed regions is much more glaring. In the less developed regions, the total population amounted to more than 1,000 million in 1920, to 2,000 million in 1960, and will perhaps exceed 5,000 million in 2000. It has nearly doubled in forty years, and in the next forty years it will probably more than double. In all these regions combined, the urban population amounted to only 100 million in 1920 but, growing with outstanding rapidity, it already surpassed 400 million in 1960 and in the year 2000 it may come to 2,000 million, a twenty-fold increase within eighty years. This growth notwithstanding, increases in the rural population of less developed regions have been enormous, and will be even greater, namely more than 500 million during 1920-1960, and more than 1,000 million during 1960-2000.

79. These changes in population size and residential structure are reflected in other modifications of proportions, as shown in the percentages of table 9. Europe had 42 per cent of the world's urban population in 1920, and 25 per cent in 1960, but it is estimated that by the year 2000, only about 13 per cent of the world's urbanites will be Europeans. Other more developed regions had 31 per cent of the world's urban inhabitants in 1920, and 34 per cent in 1960, and they may decrease to a share of 23 per cent at the century's end. Meanwhile, the share of urban population in less developed regions is a rising one, from 27 per cent in 1920 to 41 per cent in 1960, and perhaps 64 per cent in the year 2000. At the same time it is to be noted that the less developed regions comprised 72 per cent of the world's rural population in 1920, and 80 per cent in 1960. After another forty years they may account for 92 per cent of the world's rural inhabitants.

80. Because of faster urban than rural growth, the percentages of urban in the total population are rising (see table 10). In 1920, 46 per cent of the population of Europe was urban, in 1960, 58 per cent, and in 2000 the proportion may attain 77 per cent. Other more developed regions, in their combination, were less urbanized than Europe in 1920, namely to the extent of 31 per cent. In those regions, however, the level of urbanization has risen faster, surpassing that of Europe in 1960, possibly to attain 84 per cent when this century comes to a close. In the less developed regions, the level of urbanization was much lower in the past, and it was only 8 per cent in 1920. In relation to that low level, however, urbanization in the less developed regions is progressing with particular speed, to a level of 20 per

cent in 1960, and perhaps 41 per cent by the year 2000. Though the less developed regions will even then be much less urbanized than the more developed ones, it is noteworthy that by the century's end they will probably be as urbanized, and possibly more so, as were the more developed regions in 1920.

TABLE 10. ESTIMATED PERCENTAGES OF TOTAL POPULATION IN URBAN PLACES IN THE WORLD, EUROPE, OTHER MORE DEVELOPED REGIONS, AND LESS DEVELOPED REGIONS, 1920, 1960 AND 2000

Regions	1920	1960	2000
World total	. 19	33	51
Europe	. 46	58	77
Other more developed regions	. 31	61	84
Less developed regions	. 8	20	41

81. It does not follow, however, that the conditions attending population growth and urbanization will be the same in less developed regions as they have been in more developed regions in the past. The vastly increased sizes of population in every form of settlement - the largest cities as well as in towns, villages and the open countryside — will require different forms and methods of economic and social organization than those which were successfully used in more developed countries during earlier times. Cultural, political and international circumstances likewise will cause developments to differ in many respects, as will the persistent shortage and geographical maldistribution of sources of investment capital now causing such wide disparities in regional developments. Clearly, past experience offers very limited guidance for future developments which will have to occur on a quite different scale and under enormously different conditions. There is a need for open-mindedness so that lessons of the past can be adapted and reinterpreted in the face of changing dimensions in the economic and social problems at hand. More than that, the persistence in purposes as they have so far been understood can become questionable, and some of the goals and aspirations of humanity may have to be formulated afresh. By the almost inevitable momentum of such sweeping change, revolutions in thought, feeling, and attitude of one kind or another, impossible to indicate in any generalized terms, can become necessary and, in fact, appear bound to occur. We cannot claim to foresee them, judge them, or predict what direction they might take.

II. FERTILITY

A. AVAILABILITY OF DATA AND ESTIMATES

82. The improvement of information on fertility in the less developed countries has continued in recent years, though with less speed than during the 1950s. Reliable current data depend on the continuous registration of vital events, and in this respect little recent progress can be noted. In the absence of vital registers, information is often derived from an analysis of census and survey data on sex and age. Many recent censuses and survey data became available shortly after 1960, but fewer during more recent years. A more substantial improvement of information may occur after the many censuses expected about 1970. Areas without any information had been much reduced in the 1950s, for instance as a result of numerous sampling investigations in Africa, but recently there has been little shrinkage in the remaining areas of ignorance.

83. Five types of information on fertility levels³⁴ should be distinguished:

(a) Registration statistics; these are records derived from continuous civil registers variously organized as national systems;

(b) Sample surveys; there are perhaps the most important source of direct information in areas having no vital registers, or where registration is markedly deficient,³⁵ but despite much increased experience in the conducting of such surveys, a margin of uncertainty remains in the results as they can be affected by errors of design, probability fluctuations (notably in small samples), inaccurate field work, incomplete or unrepresentative coverage, inadequate or biased response etc.;

(c) Estimates of age composition, based on population census or survey data, permitting a recalculation of births in preceding years by the "reverse-survival" method;³⁶ the reliability of these estimates depends on the reliability of census and survey data, the accuracy

³⁶ From numbers of children of particular age, and corresponding age-specific mortality rates, it can be calculated how many were born in the corresponding years of birth, some of them having died by the date of the census. of age statements, and also on the accuracy with which the recent levels of child mortality can be assessed;

(d) Methods for the evaluation and correction of unreliable data, usually consisting of some combination of the methods described above; and

(e) Tentative projections of an earlier trend into a recent period for which there are no new data.

The last type of information is generally the least reliable and is easily influenced by subjective judgement, but the United Nations also uses this method of last resort in its continuing endeavour to establish the needed world-wide comparisons.

84. Not everywhere is the registration of vital events equally accurate. Countries with "virtually complete"37 registration of births comprise about 35 per cent of the world's population; for about 62 per cent of the world's people the birth-rates can be estimated more or less approximately by other methods. No estimates based on any tangible measure can be made for the remaining 3 per cent. Areas of virtually complete registration coincide almost entirely with the world's more developed regions, namely Europe, the Soviet Union, Northern America, Japan, Australia and New Zealand, and certain parts of Latin America. Less complete registration comprises a majority in Latin America (61 per cent of the population) and Northern Africa (58 per cent), aside from minor portions of Asia. Surveys as a source of information on fertility account for much of Tropical Africa (50 per cent), and the most populous countries in Asia (60 per cent of the combined population of Asia), though in these instances various other analytic methods have also been applied. The countries for which birth rates are still undocumented include Afghanistan, Ethiopia Somalia, Saudi Arabia and several other countries in Africa and Asia which have smaller populations. Because of the lack of new censuses, the basis for many current estimates has become relatively old; this concerns the estimates by analytic methods for almost half the populations of Asia and Latin America.

85. A special case in the evaluation of the probable fertility level is the mainland of China, comprising 23 per cent of the entire world's population. For a few years, ending in 1957, birth rates were officially published,

³⁴ Most of the discussion in this chapter is in terms of the crude birth rate (number of births occurring per 1,000 inhabitants in any one year), though this is sometimes affected by variations in the population's age composition, or other complicating factors. In a few places, reference is also made to the gross reproduction rate (number of daughters apt to be born per woman passing through her fecund life-span, according to current age-specific birth rates).

³⁵ India is the largest country with an established machinery for recurrent and systematic demographic surveys.

³⁷ The United Nations Statistical Office classifies as "virtually complete" those registers of vital statistics where at least 90 per cent of all occurrences are believed to be recorded. The statistical coverage by data of the above-mentioned types was last summarized at an ECAFE Seminar on Civil Registration and Vital Statistics held at Copenhagen from 22 July to 10 August 1968.

but their manner of derivation was not explained. On the other hand, during various periods of the past, numerous local or regional surveys and censuses had been conducted permitting an approximate estimation of birth rates on the basis of the population age composition. These estimates, generally converging about the same average level, can nevertheless contain a large error. Population projections based on such assessments for 1963³⁸ have led to estimates of total population for more recent dates which do not deviate greatly from some other figures apparently based on an enumeration in 1964, which have also been recently published.³⁹ Hence it is possible that the error in the estimates of the birth rate is not very severe, but it remains probable that this error can be considerable. China's population being so large, the probable error remains significant in any estimate of the average birth rate for the whole world.

86. In almost all countries with good birth registers, the statistics include adequate data on the age composition of women and on births according to the age of the mother, thus facilitating the computation of agespecific birth rates. Analogous data are also obtained in surveys; in fact, survey data lend themselves better to a study of the fertility age pattern than to an accurate measurement of the absolute fertility level itself. The accuracy of age statements, however, is often questionable.

B. GLOBAL TRENDS, 1960-1970

87. Table 11 contains a general picture of birth rates and gross reproduction rates as they have been estimated for 1960-1965 and 1965-1970 in regions throughout the world.⁴⁰ The estimates for 1965-1970 are in part projections. A principal distinction is also made between currently more developed and less developed regions.⁴¹ Subject to more detailed variations caused by differences in age structure and fertility age patterns, it can be seen, very roughly, that birth rates are about fifteen times the corresponding gross reproduction rates.⁴² As determined by statistical tests in

⁴⁰ The regions are those used in table 11 (World Summary) of the United Nations *Demographic Yearbook* (United Nations publication, Sales No.: 68.XIII.1), and also in *World Population Prospects as Assessed in 1963* (United Nations publication, Sales No.: 66.XIII.2).

⁴¹ For this purpose, the more developed regions comprise Europe, the Soviet Union, Northern America, Japan, Temperate South America, and Australia and New Zealand, while the "less developed" regions comprise the rest of the world.

⁴² This is only a rough indication of comparative magnitudes in the two measures, under average conditions as this time. Actually, the relationship is not so simple and under particular conditions the birth rate can be considerably more or considerably less than fifteen times the gross reproduction rate. an earlier study, few indicators discriminate so sharply between more developed and less developed countries as does the measurement of fertility.⁴³ With very few exceptions it is accurate to say that the less developed countries are those whose gross reproduction rate is greater than 2.0, or whose crude birth rate is greater than 30 per 1,000. Despite some changes estimated to have occurred between 1960 and 1965, this has

⁴³ Population Bulletin of the United Nations, Conditions and Trends of Fertility in the World (United Nations publication, Sales No.: 64.XIII.2). Other indicators, such as income, energy consumption, literacy newspaper circulation, medical facilities etc., overlap more widely among more developed and less developed countries.

TABLE 11. ESTIMATES OF THE CRUDE BIRTH RATE, 1960-1965 AND 1965-1970, AND GROSS REPRODUCTION RATES, 1965-1970, IN MAJOR AREAS AND REGIONS OF THE WORLD

Area	Birti	Gross reproduction rate	
	1960-1965	1965-1970	1965-1970
World total	35.1	33.8	2.3
More developed regions	20.5	18.6	13
Less developed regions	42.0	40.6	2.7
East Asia	34.0	31.5	2.0
Mainland region.	36.1	33.1	2.1
Janan	17.2	18.0	1.0
Other East Asia	38.7	34.7	2.5
South Asia	45.1	44.3	3.0
Middle South Asia	45.4	44.4	3.0
South East Asia	44.6	44.2	3.0
South-West Asia	44.0	43.6	3.1
Europe	18.7	18.0	1.3
Western Europe	18.2	17.5	1.3
Southern Europe	20.7	19.4	1.3
Eastern Europe	17.5	17.3	1.2
Northern Europe	17.9	17.6	1.3
Soviet Union	22.4	17.9	1.2
Africa	46.9	46.8	3.1
Western Africa	49.0	48.8	3.2
Eastern Africa	46.4	46.6	3.1
Middle Africa	45.0	45.3	2.9
Northern Africa	47.5	46.9	3.2
Southern Africa	40.3	40.7	2.7
Northern America	22.7	19.3	1.4
Latin America	39.1	38.4	2.7
Tropical South America	40.7	39.8	2.8
Middle American Mainland	44.6	43.7	3.1
Temperate South America .	26.8	26.3	1.8
Caribbean	36.7	35.0	2.4
Oceania	27.1	24.5	1.7
Australia and New Zealand	22.6	20.2	1.4
Melanesia	42.4	41.7	2.9
Polynesia and Micronesia .	41.5	39.7	2.9

³⁸ World Population Prospects as assessed in 1963 (United Nations publication, Sales No.: 66.XIII.2).

³⁹ Information published in newspapers and broadcasts on the Chinese mainland and variously interpreted in the Japanese Press, for example, *Mainichi* (Tokyo) on 15 April 1968, 7 September 1968 and 9 November 1968. See also *Far Eastern Economic Review*, vol. 59, No. 14 (Hong Kong, 31 March-6 April 1968).

remained true. At both dates, the average birth rate of more developed regions (20 per 1,000 in 1960-1965 and 19 in 1965-1970) was one-half that of the less developed regions (42 and 41 per 1,000, respectively). A similar observation can be made with respect to gross reproduction rates.

88. Between 1960-1965 and 1965-1970, the average birth rate of Europe decreased from 19 to 18 per 1,000, and the gross reproduction rate from 1.3 to 1.2. This happened while there was hardly any change in Northern and Eastern Europe, a slight decrease in Western Europe, and more noticeable decreases in Southern Europe. Fertility levels no longer differ much among regions in Europe, nor do they indicate any marked trend of change.

89. More significant than that in Europe has been the decrease in birth rates of other more developed regions, notably the Soviet Union, Northern America, and Australia and New Zealand. But the circumstances of the fertility decline differ among those regions. In the Soviet Union birth rates have never been so low before, hence their decrease between 1960 and 1970 can be interpreted as an advanced phase of the demographic transition. Temperate South America is another region with birth rates now lower than at any previous date. In Northern America and Oceania, on the other hand, the lowest historical birth rates were attained in the 1930s, followed by a marked rise late in the 1940s to a comparatively high level which was sustained almost throughout the 1950s. In these regions, therefore, the renewed decrease is a return to lower levels which prevailed earlier.

90. The fertility level in Japan, after a momentous decrease from a post-war "baby boom" in 1947, has settled down to a low level and remained remarkably stable. Coincident with this there is also an inherent homogeneity in the fertility age pattern, as discussed later. A social norm connected with modern reproductive mores thus appears to be firmly established in Japan. It can hardly be expected to change much unless large changes in social conditions also occur, and there is no indication of such changes. In such an event, however, any response in the national birth rate might also be quick. An unusual decrease in the birth rate seemed to occur in the year 1966 because, according to traditions, this was popularly regarded as an "inauspicious" birth year.44 The decrease is probably due both to early or late registration as well as to the postponement of births; the 1965-1967 average in recorded birth rates remains consistent with the established level.

91. Mention should also be made of Southern Africa. This is a "more developed" region according to most economic indicators but, owing to the unequal incidence of social indicators among its ethnic groups, it is "less developed" when the majority of its inhabitants are considered. The birth rate of the European minority in that region decreased from 25 per 1,000 in 1960 to 23 in 1965, similarly as in other regions of overseas European settlement. For the Bantu majority, the birth rate has been estimated at a high level and it cannot be determined whether this has recently undergone any significant change.

92. Generally one may conclude for the more developed regions that certain minor fertility changes have occurred during 1960-1965. The conclusion is assured because the statistics are accurate. Around 1960, fertility levels still differed significantly among those regions, being lowest in Europe and Japan, but markedly higher in the Soviet Union, Northern America, Temperate South America, and Oceania. By 1965, much of that difference had vanished. In the Soviet Union and regions of European overseas settlement, the birth rates decreased noticeably, whereas in Europe and Japan they changed only slightly, hence birth rates have become quite similar throughout those regions. The reasons for this recent convergence cannot be stated simply because it has resulted from previously divergent trends. The apparent emergence of an almost uniform fertility level throughout the more developed regions is noteworthy, though it still disguises some more significant differences which remain among particular countries or among important subgroups contained within some of the national populations.

93. No assured conclusions, by contrast, can be drawn about recent fertility trends in the less developed regions. For most of their population, the available data and estimates are not sufficient, or not sufficiently accurate, to permit the clear assessment of any trend. Nevertheless, there are at least some countries and regions with fairly accurate information. For instance, it is probably correct to assume that birth rates have diminished at least slightly in many parts of Latin America. In certain smaller countries of South and East Asia recent birth rate decreases are even better documented. It is probable that little change has occurred in birth rates elsewhere, including some of the most populous countries. But for the lack of sufficiently detailed evidence this statement cannot be made with any certainty. Despite what is known about some selected countries of smaller population, it is impossible to assert whether in Asia, or in Africa, each taken as a whole, the birth rate has changed at all during the 1960s.

94. These limitations of information are unfortunate when it is considered that Asia is inhabited by more than one-half of the world's people whose rapid multiplication causes much concern. Hence there is an understandable temptation to draw conclusions with respect to large populations from the more specific observations made within those smaller areas where the information happens to be trustworthy. But in the areas of better statistics, the circumstances affecting fertility, as well as many other developments, are likely to be more special and therefore unrepresentative of the larger areas where information is scant. As optimists seek

⁴⁴ According to an ancient east Asian tradition, years are identified by the combination of each of twelve animal symbols with each of five elements, making a cycle which recurs once every sixty years. One of these combinations called the "fiery hose", which occurred in 1966, is considered undesirable as a birth date.

hopeful pointers wherever they may find them, the risks of misjudgement are considerable. Two countries alone comprise nearly two-thirds of all of Asia's inhabitants, namely India and the Chinese mainland. There are good reasons to assume that no significant change has occurred until recently in the birth rate of India. One may be inclined to estimate a slow decrease in the birth rate on the mainland of China, but there exist hardly any data to bear out this conjecture.

95. One major area where fertility may even be increasing is Africa, especially Middle Africa.⁴⁵ Data are lacking to verify this as a fact, and existing data suggest little change, including possibly slight decreases in Northern Africa. Taking Africa as a whole, one may fairly conclude that the combined birth rate has hardly changed between 1960 and 1970, averaging about 47 per 1,000 at both dates. This is the highest fertility level for any major world area.

96. South Asia comes next, and its average birth rate is now estimated at 44 per 1,000. The data are not accurate enough to prove any recent change.

97. The estimated decrease in the birth rate of Latin America is derived from evidence which also is not very firm, though perhaps slightly more assured than the estimate for South Asia.

98. The estimated decrease in the birth rate of the East Asian mainland is almost sheer conjecture. Account was taken of social processes on the Chinese mainland which may be conducive to the postponement of marriages and the spacing of births within them. But pertinent evidence is only a matter for speculation and not reducible to a quantitative measure. Decreasing birth rates in "Other East Asia" (Taiwan, Korea, China, and the Ryukyu Islands), however, and in Hong Kong, have been observed with assurance, partly on the basis of entirely reliable vital statistics.

99. The combined estimates for less developed regions are thus only partly demonstrable with satisfactory statistics. But in some countries, not of very large population, adequate data show the definite beginnings of decisive demographic change. In view of economic and social developments also occurring in those countries, the theory drawn from earlier observations made elsewhere again seems confirmed, namely that certain combinations of economic and social change are conducive to deliberate family limitation. These, then, are areas where ongoing family planning activities operate within a favourable environment. The exact combinations which are apt to bring this about, however, remain incalculable. With all the present knowledge it cannot be clearly predicted whether, or when, the same phenomenon will occur throughout those large populations where, by present evidence, the high birth rates have not yet shown any new tendency. The suggestion has been made that a "threshold level" of different conditions may have to be attained before

there occurs a spontaneous decrease in birth rates.⁴⁶ Some of the attendant conditions, however, may be more decisive than some others.⁴⁷ In view of diversities in culture, and psychological factors related thereto, the minimum material and social conditions to produce such demographic results are probably not the same in every country.

100. Another important inference, borne out by the figures in table 11, may reasonably be accepted. It appears at least probable that the world's average fertility level, or that of the less developed regions, will no longer be surpassed. More likely, it has begun to decrease, and possibly this decrease may with time gather some momentum. But five years is too short a period for the determination of any definite trend, especially while many of the estimates are still so uncertain. Nor does a slow decrease in birth rates, at this point, cause any slow-down in rates of population growth.

C. Age-specific fertility rates

101. The birth rate in each country is affected by the age distribution of the population, particularly the female population, for two types of reasons, one biological and the other social. The number of women of a certain age span, such as from 15 to 49 years of age (with individual variations), is decisive for the possible number of births, as determined by their fecundity.48 The sheer ability to conceive and bear a child rises steeply, in an aggregate, between the ages of 15 and 19 to reach a maximum level which is maintained almost to the age of 29, decreasing thereafter, at first slowly and then more decisively. Thus defined, health conditions can affect the level of fecundity because congenital impairments, and others incurred in the course of a lifetime, in addition to various diseases, temporary or permanent, deprive some women of their reproductive capacity. For social and cultural reasons, however, there has hardly ever been in recorded history a population whose reproductive capacity has been used to the utmost. Births which might be possible but actually do not occur are prevented not only by biological impairments but by a wide variety of customs and modes of behaviour. These include the customary age of women at marriage, obstacles against marriage, the incidence of widowhood during reproductive ages, obstacles against the remarriage of widows, and numerous conditions determining the nature and frequency

⁴⁵ A region extending from Cameroon to Angola on the Atlantic coast and including the basin of the Congo River.

⁴⁶ See the last chapter in *Population Bulletin of the United Nations* (United Nations publication, Sales No.: 64.XIII.2).

⁴⁷ Different authors attach varying importance to particular circumstances, such as urbanization, education, or the social and economic roles of women, or they formulate this problem in different terms. See *World Population Conference*, 1965 (United Nations publication, Sales No.: 66.XIII.5), vol. I, Summary Report, Meeting A.1, Fertility, statement by the moderator. Mr. Ronald Freedman, pp. 36-49.

⁴⁸ A distinction is made between the term "fecundity" (number of children which a woman might have, full use being made of her biological capacity) and "fertility" (number of children actually conceived and born alive).

of conjugal relationships, many of them not easy to investigate.⁴⁹ The socially determined modes of behaviour are influenced by various cultural norms, by a varied incidence of economic circumstances, and by the availability and effectiveness of methods designed for the avoidance of undesired births.

102. As a result of both biological and social factors, the frequency of births varies according to the age of women. The fertility age pattern can be represented

by a curve showing, age by age, the level of each agespecific birth rate.⁵⁰ Several countries have been selected as examples of age-specific fertility patterns as shown in figures 2 and 3. In figure 2, absolute levels of fertility can be compared among the countries, age group by age group. In figure 3, the percentage distribution among age groups of each country's combined fertility rates is shown. It can be seen that in countries of lower

⁵⁰ An age-specific birth rate is the number of live births occurring among 1,000 women of a specified age in the course of one year. As already mentioned, the statistics for the calculation of fertility age patterns exist in nearly all countries with good registration of vital events, and are often obtained also in sample surveys.





Number of births per 1,000 women in five-year age groups

⁴⁹ An apparently complete list of all these factors has been drawn up by K. Davis and J. Blake in "Social structure and fertility: an analytic framework", *Economic Development and Cultural Change*, vol. IV, No. 3 (University of Chicago, April, 1956).

fertility a high percentage of all births often occurs within a limited age span, but the modal age may be comparatively early (for example, Czechoslovakia), intermediate (Japan), or comparatively late (Ireland). The more detailed shape of the curve can vary considerably from one population to another, and also for the same population in the course of time. Since they reflect several social conditions by which fertility is influenced, and various possibilities of eventual change, these curves deserve much detailed study.

103. One general observation resulting from the study of such curves can be mentioned at once. The shapes of these curves differ more widely among lowfertility populations than among high-fertility populations. This is logical, for in order to add up to a fertility level that is generally high, the reproductive capacity of women must be used to at least a considerable extent over a wide age span. Low fertility can be a result either of rather low age-specific rates distributed over a wide age span, or of births mostly occurring within a rather narrow age group, and much less frequently at other ages.

104. Another observation, resulting from comparisons for the same populations at different points of time, is this. While it is comparatively high, the general level of fertility is apt to change more quickly than the detailed shape of the curve. Once a decline of fertility has run its course, a low level having been reached,

Figure 3. Per cent of total fertility contributed by women in each five-year age group in six typical countries (around 1965)



changes in the shape of the curve can become more important. In interpreting the curves of low-fertility populations, however, it must also be considered that minority groups whose behaviour differs from the majority can affect the age-specific fertility rates disproportionately at some particular ages.⁵¹ Of course, no population is perfectly homogeneous, and some variations of age pattern among groups distinguished by social status, income, and so forth, can always be assumed.⁵²

105. For a convenient comparison of fertility curves of diverse types, the following distinctions appear useful. First, it is interesting to determine the proportion of all births⁵³ which occur to women below 30 years of age, as distinct from the births occurring after the age of 30. Secondly, considerable differences can be noted in the proportions of all births occurring either at the earliest ages (age group 15 to 19) or the most advanced ages of reproductivity (age groups from 40 to 49 years). Finally, much can be learned from the particular age (usually between 20 and 29) at which the specific fertility is the highest, and the degree of concentration of fertility within such a central age group. Some of the comparisons may be affected by misreported ages, especially in Africa and some parts of Asia.

106. In the majority of the populations for which these observations can be made, between 50 and 70 per cent of all births ⁵⁴ occur to women below the age of 30. In most low-fertility populations the proportion of births to women younger than 30 years is high, but in some where it is customary to marry only at a comparatively advanced age, this is not the case. In highfertility populations, a high proportion of births below age 30 is associated with unusually early marriage or free conjugal unions if not also with a frequent dissolution of unions, widowhood or biological sterility reducing the average fertility of women of more advanced age.

107. Populations with 50 per cent or fewer births occurring below the age of 30 years comprise Albania (1960), Guadeloupe (1964), Ireland (1959, 1965), Martinique (1960, 1964), Réunion (1960) and the Ryukyu Islands (1960). Perhaps such populations are more numerous in Africa, Asia and Latin America in regions for which sufficient or reliable statistics are still lacking. More extensive information on this point would be of some interest because such populations appear to be comparatively well poised for a possible

⁵⁴ Here and in the following "all births" is taken in the meaning explained in the preceding foot-note.

decrease in fertility level. In some of them a decrease has already begun and has proceeded rapidly. The lower frequency, or postponement, of births among younger women indicates a strong social influence on reproductive behaviour because reproduction at the earlier ages is effectively repressed. In the process of fertility decline, however, the share of the second half of the child-bearing period decreases as a result of eventual restrictions on family size. Sometimes family limitation at the upper ages occurs concomitantly with an increase in the fertility of young women, as has recently happened in Ireland, for instance.

108. Populations where 70 per cent or more of the births occur to women under the age of 30 years are mostly in Europe, especially Eastern Europe. In Bulgaria (1960, 1965) this proportion attained 80 per cent. All other Eastern European countries are in this group and also the following: Denmark (1960, 1965), England and Wales (1965), Luxembourg (1965), Sweden (1965), West Berlin (1964) and Yugoslavia (1965). Outside Europe, an equally high percentage of births to women under 30 can be noted in Japan (1960, 1965), New Zealand (1965) and the United States (1960, 1965), all of them countries with low fertility. Demographic surveys have revealed high proportions of childbirths below the age of 30 also in some African populations where for reasons still to be studied, there is an exceedingly high fertility of women from the earliest reproductive ages onward. Such observations have been made in Cameroon (Sud Bénoué, Adamaoua, 1960-1964), Guinea (Honkouré, 1957), Madagascar (Majunga, 1961), Senegal (rural nomads, and inhabited centres, 1957), and West Cameroon (1964-1965).

109. The share of children born to women of the first reproductive five-year age group (15 to 19 years) is an important indicator of the influence of social factors, especially the age of entry into marriage or, in some areas, free conjugal unions. This share varies from virtually nil to as much as 25 per cent, but in the majority of populations it ranges between 5 and 15 per cent. In all the populations mentioned in paragraph 107, births to very young women are, of course, rather infrequent. Aside from those, shares smaller than 5 per cent have been found in the following countries of Europe: Belgium (1960), Federal Republic of Germany (1965), France (1960, 1965), Italy (1960), Luxembourg (1960), Malta (1960, 1965), the Netherlands (1960, 1965), Norway (1960), Portugal (1960, 1965), Spain (1960, 1965), and Switzerland (1960, 1965); and also in China (Taiwan) (1960, 1965), Cyprus (1966), Hong Kong (1965), Israel (1965), and the Soviet Union (1965-1966). Among those countries, two groups can be distinguished according to recent trends. In some (for example, Ceylon, Israel and the Soviet Union), the share of births to very young women was not yet so small in 1960 but has recently become so as part of the decreasing fertility trend. In some others (for example, Belgium, Italy and Norway), the opposite occurred; there, because of a shift of childbearing to earlier ages, the proportion of births occurring at the earliest ages has increased between 1960 and 1965. One case, however, is somewhat exceptional, namely Japan, where with an

⁵¹ Because of the comparatively high fertility of various ethnic groups within the Soviet Union, for instance, large proportions of the births occurring at either the earliest or the most advanced reproductive ages are those occurring among some ethnic groups.

⁵² The unusual concentration of fertility withing a narrow age span in Japan suggests a high degree of cultural homogeneity, or social conformism, in that population.

⁵³ Actually births according to age-specific rates, assuming 1,000 women in each age group. Absolute numbers of births in a population would also depend on the varied numbers of women of each age, a complicating factor from which abstraction is made in the present discussion.

unusual concentration of births around a central age, births at an early age are particularly infrequent.

110. There exist, however, a number of high fertility populations where the share of births to very young women is also low. Where this is the case, one may assume that social factors are present which might facilitate a fertility decline. Such countries include the Republic of Korea, the Philippines, Réunion, Singapore, and the United Arab Republic.

111. Proportions greater than 15 per cent of all children born to women aged 15-19 years are found only in Bulgaria (1960, 1965) and Eastern Germany (1960, 1965) among populations of low fertility. Among high-fertility populations, this is observed more frequently. Some of these are the populations of areas already mentioned in paragraph 108, and there are several others, including most countries in Western Africa (such as, Cameroon, Chad, Dahomey, Gabon, Ivory Coast, Mali, Senegal) and also the Malagasy Republic (Tananarive, 1956). In addition, East Pakistan and several Indian states (mostly in northern India) belong to this group. From the demographic viewpoint adopted here, such fertility patterns suggest that social factors which might favour a fertility decline are rather weak in these areas.

112. Towards the other end of the reproductive life span, the share of births occurring to older women (aged 40 to 49 years) can vary from virtually nil to 15 per cent, and in high-fertility populations it is often between 5 and 10 per cent. In all countries having passed through the demographic revolution, however, the share is smaller than 4 per cent, and in most it is even less than 2 per cent. High fertility among older women invariably indicates numerous large families, or many births of an advanced order.55 In some lowfertility countries, minority groups persist in which high-order births are still common (for example, Eskimos, Gypsies, some small religious minorities and various ethnic groups in the Soviet Union). Again the share of births to older women is lowest of all in Japan, namely only 0.75 per cent. Other countries with fewer than 2 per cent of all births occurring to women above forty include Belgium, Czechoslovakia, Denmark, the German Democratic Republic, Hungary, Sweden, the United Kingdom and West Berlin, all in Europe, and also the United States. These are countries in which births of a high order occur only exceptionally or rather rarely.

113. To the other extreme, 10 or more per cent of all children are born to women over forty only in populations of high fertility. These include Albania (1960, 1965), Algeria (1965), Chad (1964), the People's Republic of the Congo (1960-1961), the Democratic Republic (1950-1955), Madagascar (1966), Martinique (1960), the Niger (1959-1960), Pakistan (1963), Senegal (1957),

⁵⁵ Here, "order of birth" means the consecutive order of children born to the same woman, namely, first births, second births, and so forth.

Thailand (1960) and Togo (1958-1960). It is noteworthy that many of these populations are situated in Africa. The case of Albania is quite exceptional in Europe.

114. The percentage of all births occurring between the ages of 20 and 29 years, finally, is a measure of the concentration of fertility within a narrower span comprising the central childbearing ages. This measure attains high levels only in populations of low fertility. At the extreme, in 1965, there was the case of Japan, with 74.8 per cent of all births occurring in the 20 to 29 year age span of women. The next highest percentages were in Czechoslovakia (69.3), Hungary (68.7), Bulgaria (67.5), Luxembourg (67.1), United States of America (66.4) and Poland (65.2).

115. Of much further interest is also the distribution of fertility within this central range, such as between the 20-24 year and the 25-29 year groups of ages. But here the simple method of measurement becomes defective. Fertility might be most concentrated, for instance, around the ages of 24 or 25, in which case it would appear to be similarly high both in the 20 to 24 and the 25 to 29 group. Observations by single years of age would lead too far in the present context, but it is worth mentioning that the case of France is one such example.⁵⁶ On the other hand, there are many populations in which peak fertility levels are particularly concentrated either within the earlier or within the later of these five-year age groups. In Bulgaria (1965) 42 per cent of all births occurred within the 20 to 24 group, and Czechoslovakia, the German Democratic Republic, Hungary and Romania all had levels above 35 per cent. By contrast, 48 per cent of all births in Japan were in the 25 to 29 group, and peak fertility levels in that particular age span are now emerging in some other east Asian populations (for example, China (Taiwan), and the Ryukyu Islands). Greece (1960), Luxembourg (1965) and Switzerland (1965) also recorded nearly 35 per cent of all births in the 25 to 29 year group. Countries where the peak fertility rates fall between the two age groups include Belgium, England and Wales, France, and New Zealand.

D. REGIONS OF LOW TO MODERATE FERTILITY

116. Taking a gross reproduction rate of 2.0, or a birth rate of 30 per 1,000, as the dividing line, we find that, with only the fewest exceptions, all the countries of lower fertility can also be rated as the more developed countries in most other economic and social respect.⁵⁷ Regions of low to moderate fertility now include Europe, the Soviet Union, Northern America, Japan, Temperate South America, and Australia and New Zealand.

⁵⁶ See figure 3.

⁵⁷ As already mentioned, a previous study has found fertility to be an indicator which discriminates more sharply between more developed and less developed countries than do most other economic or social indicators, *Population Bulletin of the United Nations*, (United Nations publication, Sales No.: 64.XIII.2).

Albania is an exceptional high-fertility country situated in Europe. Chile, included in Temperate South America also has rather high fertility. On the other hand Cyprus and Israel, in south-west Asia, have low fertility. Not very reliably, some surveys have also indicated comparatively low fertility levels among various population groups in Middle Africa. Within the Soviet Union, there are still several minority groups with high fertility, whereas for a minority of the population of South Africa the fertility is low.

117. In modern history, fertility declines in large populations began first in Northern and Western Europe, then spread to countries of European overseas settlement (Argentina, Australia, Canada, New Zealand, South Africa and United States of America, Uruguay, and in Southern and Eastern Europe and, more recently still, to Japan and the Soviet Union. At present, fertility is not the lowest in countries where it declined earliest, but rather in those of more recent decline, especially Eastern European countries and Japan. This is to say that the demographic transition of earlier decades has not resulted in a stable situation but has in many instances been followed by a partial recovery from previously lowest levels of the birth rate. That recovery was rather large in countries of European overseas settlement, but has now given way to a renewed subsidence. This instability in a post-transition birth rate can have various contributing factors including shifts in average ages at marriage, intervals between successive births, and so forth.58 Considerable variations can, therefore, occur in the birth rate once it has fallen comparatively low.

118. The experience of France during the 1930s and 1940s can be taken as a significant example. During a long period before the Second World War, the pronatalist policy in that country did not noticeably affect the fertility level, though there was much concern with the apparent imminence of absolute population decline. Increased numbers of births occurred, however, in the 1940s, first perhaps because some births had been postponed under the economically depressed conditions of the preceding decade, but eventually reflecting a more marked change in attitudes with respect to births. Since then and more recently the increased level of fertility in France has again shown a tendency to subside. Because of unknown time-lags in response to varying conditions, either those experienced in preceding years, or those expected in years to come, it is evidently difficult to relate changes in the birth rate to accompanying circumstances which may influence them more or less directly. Once the demographic transition has been completed, therefore, considerable fluctuations in birth rates still occur which cannot be easily forecast or interpreted.

⁵⁸ Special methods of analysis have been devised for the study of component factors, such as birth rates by duration of marriage, parity progression ratios (probabilities of having an additional birth), and cohort analysis (births occurring successively to groups of women who themselves had been born at the same time, hence are of the same ages at any given time). 119. Changes in fertility patterns may also occur without necessarily causing much effect on the level of the birth rate. Ireland may be taken as the example of a country where birth frequencies are shifting towards younger ages. Previously, most Irish women married only at a fairly advanced age, followed by a consequently shortened time of reproductivity at rates which, for such advanced ages, were rather high. A transition towards more frequent marriage at earlier ages is now in progress, simultaneous with a decrease in relative frequencies at more advanced ages. The resulting crude birth rate, however, has not changed much. It is likely to decrease somewhat if this shift in age pattern continues.

120. Aside from these more detailed conditions, fertility levels are now tending to become more nearly uniform throughout Western and Northern Europe, including adjacent areas in Southern and Eastern Europe (Czechoslovakia, the German Democratic Republic, northern Italy, and north-eastern Spain). The exception of Albania (birth rate 43.4 per 1,000 in 1960) has already been mentioned, but even here there has recently been a steep decline (to 35.2 in 1965). Elsewhere in Southern and Eastern Europe, fertility declines have continued and are now reaching levels as low as, and even lower than, those of Western and Northern Europe. At these stages, where the demographic transition has only recently been completed, the sharp reduction in fertility past the age of 30 years is most in evidence. In all these countries, there is an increasing concentration of fertility within a limited age range, and a lowering of the age at which births are most frequent. The rapid completion of this cycle has been favoured in eastern European countries by legislation facilitating the legal abortion of unwanted pregnancies. Some of them have recently had the lowest birth rates in the world (for example, 13.1 per 1,000 in Hungary, and 14.6 in Romania, in 1965), corresponding to gross reproduction rates smaller than 1.0. If their populations were not declining, this was due to the low death rates still possible while the proportion of aged persons in the population remained relatively low. In Romania, the Government passed several legislative measures in 1966 designed to strengthen family life while prohibiting free divorce and abortions. Since 1967, the birth rate of Romania has in fact been greatly increased.

121. In countries of overseas European settlement, notably the United States and Canada, birth rates have recently declined very much, from previously higher levels to levels more similar to those in Europe. The detailed shifts in the structure of fertility in those countries have received much study.⁵⁹ Nevertheless, few basic explanations have been found why fertility should have fluctuated so much — from quite low in the 1930s, to the considerably higher levels in the 1950s, and the current declining again. It is, of course, possible

⁵⁹ Such as age at marriage, fertility of individual cohorts, intervals between successive births, relationship between desired or expected numbers of births and actual births, differences between socio-economic, ethnic and religious groups etc.

to relate these shifts to an intergeneration cycle, of a duration comparable to some components of the traditional business cycle which had "upswings" and "dowswings" extending over many years.60 From such a viewpoint the strictly demographic methods of population projections can become questionable because on these grounds even the opposite may sometimes happen from that which may be predicted. Thus, economic reasons may cause a reduced fertility precisely at a time when the entry of greater numbers of young persons into ages of both employment and reproductivity would lead to the prediction of an increased birth rate; and an increased fertility when diminishing numbers of young persons reach such ages and fewer births might have been predicted on strictly demographic grounds. The interplay between pertinent economic and sociological factors, however, has not yet received much investigation.

122. In Argentina, Uruguay, Australia and New Zealand, fertility decreases were less extensive up to 1965 than those in Canada and the United States, yet the trends are in the same direction. If, as in the past, fashions and mores affecting populations of European tradition or culture still originate from areas situated around the northern Atlantic, it is possible that recent changes have not yet had so much impact in the settlement regions of the southern hemisphere. Much mention has been made, in most areas of overseas European settlement, of the recent rapid spread of new contraceptive methods, especially certain oral pills. It is true that these methods have taken the place of older methods among extensive population segments, and it is possible that in some ways they are more practical or effective than earlier devices. But it is doubtful that the use of these, rather than other methods has been a cause of the recent fertility decline. Fertility was even lower in the 1930s when the new methods were still unknown.61

123. Despite the European origin of most of its population, the fertility trend in Temperate South America has not been the same as that in other overseas European settlement regions. Argentina is the principal country containing the majority of that region's population.⁶² From previously very high levels, birth

⁶¹ Conditions affecting marriage, however, had changed considerably, exposing a larger proportion of young women to the risk of pregnancy than was the case in the 1930s.

rates declined in Argentina, reaching a moderate level about 1930 which remained almost constant until recent years. Recently the decline has resumed but has not become rapid. Perhaps the southern european origin of most of Argentina's population (the country having been settled principally by migrants from Italy and Spain) should be kept in view, together with the fact that the demographic transition was completed earlier in Northern and Western Europe (and among settlement populations which had mainly originated from there) than in Southern and Eastern Europe.

124. The continuing fertility decrease in the Soviet Union in the 1960s is one of the most important in the world, considering that this country contains the largest population among those of an advanced stage of economic and social development. Large differences in fertility among subpopulations within the Soviet Union have persisted. Birth rates in the Estonian, Latvian, Lithuanian and Ukrainian Republics are now among the lowest in the world, comparable with those in Hungary and Romania (1965). On the other hand, in the Soviet Republics of Central Asia and in the Caucasus region, birth rates are still rather high. Even in those areas fertility declines have begun and are progressing. For the majority of the Soviet Union, as evidenced by shifts in fertility age pattern, the birth rate may no longer decrease much and possibly even recover somewhat. Nevertheless, for the Soviet Union's combined population, a small further decrease in the average birth rate can still be expected because of expected continuing declines in those regions where it is still high.

125. The somewhat unique fertility pattern in Japan has already been pointed out elsewhere. Because of an unusual combination of circumstances, the birth rate was halved in a period of ten years (from 34 per 1,000 in 1947 to 17 per 1,000 in 1957) but then, after such a rapid change, has remained virtually constant. It is noted, however, that for some time Japan's fertility was only moderately high, and never extremely high. A declining tendency was noted in the 1920s and 1930s, but this was affected thereafter by sharp political changes and eventually the severe dislocations caused by the war. The level of the birth rate in 1947, therefore, was boosted by post-war effects though practices of family limitation were already fairly widely known. The steep decline up to 1957 was also facilitated by a widespread recourse to legally available abortions. Since then, abortions have diminished in frequency and other methods of birth limitation have come into wider use. Being so unusual, the fertility trend in Japan has attracted much attention. It was thought for a time that similarly drastic changes might also occur under special circumstances in other areas.

126. The special case of Japan remains interesting because that is the first large population of non-European origin where birth rates have fallen so low. But several particular features should be noted, such as the rather late average age at marriage, and the high degree of social conformism reflected by the concentration of most births within a limited age span. One is tempted to consider whether similar occurrences may

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⁶⁰ See R. A. Easterlin, *Population, Labor Force, and Long Swings in Economic Growth* (New York and London, Columbia University Press, 1968). See also "Comment" by J. V. Grauman to "Mortality, fertility, the size-age distribution and the growth rate" by F. W. Notestein, pp. 275-284 in *Demographic and Economic Change in Developed Countries* (Princeton, Princeton University Press, 1960).

⁶² For geographical reasons, this region is defined to comprise Argentina, Chile, Paraguay and Uruguay. Chile combined economic and social conditions which place it either near the upper limit of "less developed" or the lower limit of "more developed" countries. There the birth rate fell from the moderately high level of 35.7 per 1,000 in 1960 to 30.6 in 1965. Paraguay is still decidedly "less developed" and has a persistently very high birth rate. In Uruguay, on the other hand, the trends in the birth rate, as also in other development indicators, have closely paralleled those in Argentina.

be possible in other populations of east Asian culture. There is positive information showing large recent declines in the birth rates of Chinese populations in China (Taiwan), Hong Kong and Singapore, and the Chinese minority in western Malaysia. In association with the culture of Japan, the birth rate in the Ryukyu Islands has also fallen very low. And indirect evidence confirms that birth rates are now decreasing in the Republic of Korea.

E. REGIONS OF HIGH FERTILITY

127. Not much is known, on the whole, about past trends in the birth rates of most high-fertility populations It is generally assumed that birth rates were similarly high in the past as they have been observed more recently. This is a reasonable assumption in the light of those earlier observations which have been recorded. While it is also known that high-level birth rates can fluctuate,63 for the lack of accurate observations those fluctuations can at best only be conjectured. Only in recent years have data become sufficient to measure, or estimate, the level of fertility in most countries of the world. It is important to note that birth rates are not equally high in all the less developed areas, and it is interesting to observe the incidence of diverse factors which may cause them to differ. In these respects, knowledge has recently become rather extensive. The long-run trends and fluctuations are still largely unknown.

128. Western Africa is now the world's region of highest fertility, followed by Eastern Africa and the Middle American Mainland. Elsewhere, excepting minority groups, fertility is never quite so high. Even in low-fertility countries, minorities with high birth rates persist, as already mentioned, and there is also the high fertility of Albania, situated in Europe. Within the Soviet Union, the minorities still having high fertility comprise some fairly large populations.

129. The exceedingly high fertility now noted in western Africa is possibly of recent origin. What the level was in the past cannot be determined, but under the much poorer health and sanitary conditions of earlier years it may been lower. Even the recent measurements, mostly based on sample surveys, are probably not very accurate. Countries with birth rates of 50 per 1,000 or higher in the 1960s probably include Dahomey, Guinea, the Ivory Coast, Mali, the Niger, Nigeria and Upper Volta. Some of these are still among the economically least developed. Within the large population of Nigeria, surveys have indicated that fertility in the city of Lagos is not quite as high as in the rest of the country. Other west African countries with very high birth rates — though below 50 per 1,000 — include Ghana, Senegal and Sierra Leone. In Liberia, it appears that fertility may be distinctly lower.

130. In eastern Africa the situation is almost similar, discounting two small island populations with accurate birth registers. High but declining birth rates have been recorded in the 1960s in Mauritius and Reunion, but as these islands are somewhat remote from the African mainland, the trend is not of regional significance. An estimate of the average birth rate of East Africa is hazardous while there are as yet no pertinent statistics for the large populations of Ethiopia and Mozambique. In Madagascar, Rwanda and Zambia, birth rates may be higher than 50 per 1,000, white it is near 47 in Tanzania, about 43 in Uganda and 43 the rate in Mauritius fell to 35 per 1,000 in 1965.

131. In the region defined as middle Africa, birth rates are generally lower, though also decidedly above 30 per 1,000, with a regional average of 45. This includes the Democratic Republic of the Congo (average birth rate 43.0 per 1,000 in 1955-1957), with rather moderate rates in the equatorial and eastern provinces of low population density where, for reasons not well known, many women remain childless. In Gabon the birth rate is estimated as low as 31 per 1,000 (1960-1961), and in Cameroon at 43. These comparatively low birth rates seem related to a concentration of fertility in the earliest child-bearing ages of women, and relatively few births past the age of 30. It is generally conjectured that this fertility pattern corresponds to poor health conditions causing much sterility. If so, improvements in health are quite likely to produce increases in the birth rate. Higher levels of fertility are noted elsewhere in this region, namely in the Central African Republic, Chad, and probably also Angola.

132. For northern Africa the estimates are more assured, being based largely on continuous registration statistics, though these are incomplete. For the combined region, the birth rate is estimated as 47 per 1,000 in the recent decade. The region includes the Sudan (birth rate of 51.4 per 1,000 in 1955-1960), but here also regional variations can be noted, with the birth rate in Khartoum Province being somewhat lower; the recent trend, however, is not known. In the United Arab Republic, on the other hand, the birth rate seems to fluctuate between 43 and 45 per 1,000. Elsewhere in northern Africa it is generally between 49 and 50.

133. Southern Africa, as already stated, is a more developed region according to various economic indicators, but not according to indicators reflecting conditions of the majority of its inhabitants. South Africa's combined birth rate may have averaged 42 per 1,000 in 1960 and 41 in 1965. For the Bantu majority, census data of 1960 lead to an estimate of the birth rate at 46 per 1,000. Small populations much affected by emigration appear to have more moderate birth rates, such as Lesotho (40 in 1956) and Swaziland (36.4 in 1965). Among South Africa's European minority, the birth rate has decreased from 24.9 in 1960 to 22.8 in 1965, as already mentioned. Other minorities include

⁶³ See e.g. H. Bernadelli, "Population waves", pp. 1-18. Journal of the Burma Research Society, vol. XXXI, part I, April 1941, showing an important observation, though few further studies have been made to follow it up. Based on census data for Burma, Bernadelli demonstrated that there had been appreciable fluctuations in the birth rate at intervals approximating thirty years.

the "Asiatics" (mainly of Indo-Pakistani origin) and "Coloreds" (partly mixed population previously distinguished by a special status). As to the first, reliable statistics show decided decreases in the birth rate from a previously high level; as to the second, the birth rate appears to be very high, higher than that of the Bantu.

134. Fertility as high as in large parts of Africa can also be found in the Middle American Mainland, according to the rather reliable registration statistics of Mexico and registers of varied accuracy in Central America. In this region, the already high birth rates seem to have risen further during the 1950s but may now be subsiding again. In Mexico, a rate of 44.6 was registered in 1960, and 44.2 in 1965. Very high fertility levels prevail in the indigenous population of Guatemala and in the populations of Nicaragua and Costa Rica, slightly lower but still very high in El Salvador and Honduras, and markedly lower and apparently declining only in Panama. Despite considerable urban development, fertility differences in Mexico still seem slight. With the exception of Panama, the small decrease in the region's birth rate may be viewed as a recession from the unusually high level attained in the 1950s, associated perhaps with an increasing stability of marital unions while consensual unions were becoming less prevalent. Thus the slight recent decrease is not yet indicative of a declining trend, despite the presence of economic and social development factors which might lead to the expectation that this may soon begin.

135. In Tropical South America, the birth rate is as estimated almost as high as in the Middle American Mainland. But the estimate is less reliable because of the lack of a vital statistics system in Brazil, which contains the majority of the region's population. Previous study has shown that within Brazil birth rates were lowest in the considerably urbanized east and south, hence, in view of accelerated urbanization and other developments, it can be conjectured that birth rates have decreased further. The birth rate of Tropical South America may have been 42 per 1,000 in 1960, and it may have receded to 40 per 1,000 by 1965, but firm data are lacking for Brazil. Vital statistics registration is nearly accurate in Ecuador, Guyana and Venezuela. In these three countries the birth rates decreased between 1960 and 1965 from 47.4 to 44.0, from 42.9 to 39.7, and from 45.9 to 43.5, respectively. In Colombia, with less accurate statistics, the birth rate can be estimated near 45 per 1,000, also with the possibility of a slight recent decrease. Statistics for Peru are unreliable, and the estimates suggest birth rates similar to those in the countries already mentioned. It appears that birth rates are somewhat lower among population groups in the Andean mountains than those living in the lowlands or at the Pacific coast.

136. Recent decreases in fertility in the Caribbean region are well documented. In Cuba, for instance, a birth rate of 32.7 per 1,000 was recorded in 1966, and this is lower than the rather unreliable estimates for previous years. Between 1960 and 1965, the birth rate in Puerto Rico dropped from 32.3 to 30.2; in Jamaica from 42.0 to 38.9, and in Trinidad and Tobago from

39.5 to 32.8. In some areas of smaller population (Barbados, Guadeloupe, Martinique), similar decreases have been noted recently. For the combined Caribbean region, however, the estimate is not so accurate because of still defective vital statistics registration in the Dominican Republic, and the rough conjectures made for Haiti. In those two countries, the birth rates are probably 45 per 1,000 if not higher, and there is no indication that they may have decreased. Less homogeneous than the Middle American Mainland, this also is a region where higher birth rates were recorded in the 1950s than previously, hence any recent subsidence need not be indicative of a trend.

137. In most of Asia the birth rate is also high, but generally not among the highest. The estimate for east Asia, of course, depends on the conjectures for the Chinese mainland, as already explained. Earlier evidence suggests a considerable variation in fertility among regions of the China mainland, a phenomenon which can have much persistence in time considering, for instance, the well-documented demographic history of Europe, and also the apparent persistence of geographical variations in India. Since, with such diversity, the average birth rate may only be decreasing slowly, is plausible that it could have been somewhere between the limits of 37 and 40 per 1,000 in 1960, and between 34 and 39 in 1965 — admitted estimates for which proof is lacking. From reliable statistics a large decrease can be observed in the birth rate in China (Taiwan) from 39.5 in 1960 to 32.4 in 1966. Sample investigations strongly suggest that the birth rate is also decreasing significantly in Korea. It is known to have fallen to a moderate level in Hong Kong, and to a low level in the Ryukyu Islands.

138. Middle South Asia includes large areas for which statistics are scant. For India, the most populous country, censuses and periodic surveys permit an approximate measurement. It can be estimated that the birth rate in India was about 43 per 1,000 in recent years, and without any definite trend. In this instance, factors tending to boost the birth rate might have been at work, such as malaria eradication and related improvements in health resulting in reduced mortality and consequently reduced widowhood. The maintenance of a constant birth rate, therefore, implies that measures towards a limitation in birth frequency have also exerted an effect, though not, so far, a large one. Considerable variations in fertility level can also be noted among regions of India, with generally higher birth rates in the north and lower rates in the south. In Pakistan, the birth rate is now estimated as 50 per 1,000, with little difference between its two wings, East and West, despite the diversity of fertility age patterns. The possibility of a slight recent decrease has been conjectured in Pakistan, but it is not yet well documented. There are fairly accurate statistics for Ceylon, showing a decrease in the birth rate from 36.6 in 1960 to 33.1 per 1,000 in 1965.

139. For South-East Asia's most populous country, Indonesia, the birth rate is now estimated as 45 to 47 per 1,000, and the rate seems to be lower in Java than in other islands. For the Philippines (47) and Thailand (44) birth rates have recently been estimated at similar levels. Some fluctuations may affect the entire region, as adverse living conditions during the war (1942-1945) apparently caused a temporary deficit in births and surviving children and, therefore, a dent in the age composition. The relatively reduced number of persons now in their twenties, therefore, may temporarily lower the birth rate though the level of fertility may not have changed. Very high birth rates have been estimated in Cambodia, and rather high rates in Burma. Vital registration statistics in North Viet-Nam, and from an earlier time in South Viet-Nam, have suggested more moderate birth rates. The effects of hostilities on birth rates in that country, of course, remain incalculable. Registration statistics are of good quality in West Malaysia and Singapore. There the birth rates have begun a decided decline. In West Malaysia that rate was 40.9 per 1,000 in 1960 and 37.3 in 1966; and in Singapore 38.7, and 29.8 per 1,000, respectively, at those two dates. The majority in Singapore, and a large minority in west Malaysia, are Chinese. In the context of observations in east Asian countries, therefore, it appears that links of traditional culture are of some significance in the spread of modified family patterns, despite geographical distances. The same could be said of earlier demographic history concerning the populations of Europe and of overseas European settlements.

140. In South-West Asia also a small decrease in the birth rate is estimated, reflecting mainly a noticeable decrease in Turkey. Because of the war-time mobilization of armed forces, the birth rate was relatively low in Turkey during 1940-1945, with consequently reduced numbers of persons now in their twenties. It remains undetermined, therefore, whether the recent decrease in the birth rate reflects only a change in age composition or also the beiginning of a decline in fertility. On the other hand, the level varies widely within Turkey, from a moderate birth rate in the west to extremely high rates in the east. Birth rates of more than 45 per 1,000 are now estimated for Iraq, Jordan and Syria, and lower rates for Lebanon and Turkey. For the Arabian peninsula, only rough conjectures can now be made. The sedentary populations are estimated to have somewhat higher birth rates than the nomadic or semi-nomadic Bedouins. In the comparatively small populations of Cyprus and Israel, birth rates are much lower, as in economically developed countries elsewhere.

F. PRESENT INDICATIONS OF FERTILITY DECLINE IN HIGH-FERTILITY REGIONS

141. Fertility is the most dynamic, but also the most problematic factor in demographic trends.⁶⁴ The concept of "demographic transition" has been formulated to describe a theory according to which, in the long run, a decrease in the death rate is eventually followed by a

commensurate decrease in the birth rate.65 Large changes of this kind have indeed occurred throughout the presently more developed regions, followed more recently by other fluctuations which this theory leaves unexplained. It is true that, in conformity with the theory, the fertility declines began when more or less considerable levels were attained by various indicators of economic and social progress, for example, income, education, health, the status of women, industrialization, and various related phenomena. If the theory is true, one may expect fertility to decline also in the presently less developed regions once their economic and social conditions have advanced to corresponding levels. What precise composite of education, health, housing, income, urbanization, and so forth, will suffice remains impossible to determine, as the correlations resulting from past observations remain rather vague.

142. The recent emergence of policy measures designed to facilitate family limitation is a new factor and the long-run importance as yet cannot be fully assessed. The effectiveness of family planning policies may, however, be conditioned by economic and social circumstances. It is not certain whether similar social accomplishments, decisive among peoples of some types of cultural tradition, will have similar effects among other peoples with histories of different traditions and culture. Perhaps not only quantitative measures, but also various qualitative and structural criteria of social conditions may determine the response to modified family norms among cultures whose value concepts find diverse expressions.

143. Regarding world areas where birth rates are still high, recent observations and conjecture suggest that further increases in the birth rate need not be expected. There may be exceptions, such as middle Africa, where moderately high birth rates now seem to be depressed by unfavourable health conditions. On the other hand, birth rates in many areas may have been rather higher in the 1950s than they are likely to remain in the long run. The estimates indicate that this has been the case in Latin America and in certain parts of south Asia. Slight decreases in the birth rate since 1960, then, may sometimes reflect only a return to levels which prevailed before the 1950s, and these were also high levels. The subject has not been investigated much, but it appears that in populations of high fertility — no less than in those of low fertility — birth rates can fluctuate on a scale of decades, for instance, from one generation to the next. Reasons for temporarily increased birth rates in the 1950s may have differed between Latin America, south-east Asia and Turkey, but their effects - in relation to the longer trend - may have been similar.

144. In this connexion it is rather significant to observe that the estimated birth rate in India has been nearly unchanged over the past two decades.

⁶⁴ See statement by R. Freedman, cited in foot-note ⁴¹.

⁶⁵ D. V. Glass, "Population growth and population policy", in *Public Health and Population Change* (Pittsburgh, 1965), p. 8. This sequence has also been described as the demographic revolution, e.g. A. Landry, *La révolution démographique* (Paris, 1934).

Despite improving health conditions, and their possibly considerable consequence in India where widows once were numerous and mostly precluded from remarriage, the estimates suggest no rise of fertility, either in the 1950s or more recently. Some countervailing tendencies, not clearly analysed as yet, apparently also had an effect. The observations for India strengthen the view that significant rises in presently high birth rates should perhaps no longer be expected either there or elsewhere, with possible exceptions in Africa.

145. That high birth rates are no longer likely to rise is a minimal conclusion, to which significant findings can be added concerning recent birth rate declines. The onset of decisive fertility reductions is now well documented in several areas, and most conspicuously in certain countries of East Asia. The large body of the Chinese mainland population, however, is shrouded in a statistical mystery. One can freely speculate about its trend without being able to draw any definite conclusions. That birth rates might be decreasing there can be hypothesized for several reasons, some perhaps good but none of them fully convincing. And even if they are, one should not assume that the decrease can be very rapid, given the inertia of this large and geographically diversified country and its long and distinctive cultural history. But, speaking more generally, one can also draw inferences from the observations concerning fertility age patterns. As discussed in another section of this chapter, birth rate decreases may occur more readily, or more speedily, in populations where the average age at child-bearing, also the average age at marriage, is comparatively high. This is more often the case in east Asia and Latin America than it is in south Asia and Africa. Formerly this was also the case in most of Europe. Many psychological factors, and the effects upon them of changing economic and social conditions, or of deliberate government policies, will play the major part in the eventual modification of fertility.

146. Whereas the high birth rates of many countries are now a much discussed problem — urgency has been expressed in the government policies of some of the most populous countries in Asia and northern Africa — a responsible outlook for the near future still prompts carefully measured optimism. Numerous indications of the possibility of rapid birth rate decreases are now at hand, such as in some east Asian countries, Caribbean islands, Albania, and Mauritius off the coast of Africa. Means may also be found to assist a wider geographical propagation of pertinent attitudes and methods. There are several instances where government policies have contributed to such progress, but there is as yet not a single instance of a birth rate decline set into motion as the direct result of such policies. A fact to the contrary can be cited, namely Romania, where legislation of 1966 appears to have succeeded in raising a formerly very low birth rate.

147. Spontaneous factors, rooted in the psychology of the people concerned, appear to be indispensable to significant progress in reducing birth rates. Because intimate aspirations and life plans and strong cultural traditions are involved, it is vital that reliable family planning information be transmitted through local opinion makers whose advice is trusted. Secondly, it is vital that this information be given broad, general circulation — most effectively by word-of-mouth. Information thus spread has the best chance of producing authentic changes in attitude and the psychological motivation required to give family planning policies maximum effectiveness.

148. In a world of much cultural diversity, a genuinely perceived revaluation of basic attitudes will not spring up everywhere at once, nor will it spread in all areas with the same speed. Taking the world as a whole, and adopting a much longer view, however, one may very well entertain a hopeful outlook. A modification of family patterns, in consonance with lowered death rates, has already taken root in fully one-third of the current world population. Nor is it any more confined to peoples of one type of cultural traditions, as previously seemed to be the case. But there are limits to the speed with which birth rate declines can be expected elsewhere. Large, and perhaps very large, population increases will inevitably occur in the decades to come. Difficulties resulting from increased human numbers must meanwhile not be shirked. In the long run, new elemental facts, already widely distributed in the world, will produce a new balance.

III. MORTALITY

A. AVAILABILITY OF DATA AND ESTIMATES

149. The sources of information on mortality levels are generally the same as those on fertility levels already discussed in the preceding chapter. To recapitulate, these include (a) registration statistics, (b) sample surveys, (c) estimates calculable from population census data, (d) methods of evaluation and correction of various data, and (e) tentative projections from earlier trends. Similar reservations apply to the reliability of both fertility and mortality data from these various sources, but in the case of mortality the reservations are even more stringent. Since deceased persons are no longer present in the population, the registration or survey of deaths may often be less complete than that of births. Data from two successive censuses are often needed, and the accuracy of enumeration in both must be comparable, for an estimation of the average intercensal level of mortality. Tentative estimates of a mortality trend are often necessary pending a new census for their verification.

150. The world distribution of mortality data by type of source is similar to that of fertility data, already discussed, because the same type of source usually serves in the determination of both. Nevertheless it must be stated that, for the reasons mentioned, mortality estimates now have generally lower degrees of precision than fertility estimates, especially because many years have elapsed since the numerous population censuses taken around 1960. The situation in this respect will improve substantially when the results of many new censuses taken around 1970 become available for detailed study.

151. As in the instance of fertility, most of these sources of data also permit some study of the age patterns of mortality, including mortality differences by sex. Depending on the accuracy of the data, age-specific mortality rates provide the elements for the calculation of a life table, and from this another important mortality measure can be derived, namely the expectation of life at birth.⁶⁶

152. Despite the special interest attached to the study of infant mortality, it must be emphasized that this is often the demographic measure which can be determined with the least accuracy. Many children dying soon after their birth may be omitted altogether from vital statistics registers and overlooked in sample surveys; nor can their short-lived presence be ascertained in a comparison of data from successive censuses. Rough estimates of a plausible level of infant mortality may sometimes be made from model life tables, but these estimates are very hazardous.⁶⁷ In fact, not much more than 2 per cent of the world's infant deaths are registered with satisfactory reliability.⁶⁸

B. GLOBAL TRENDS, 1960-1970

153. A general picture of how death rates and expectations of life have recently been estimated is assembled in table 12. It must be stressed that many of these estimates are uncertain as they depend in part on extrapolations of previous trends. The amounts by which crude death rates have fallen, or expectations of life have risen, between 1960 and 1970, may in many instances have been misjudged. A closer verification of estimated trends will become possible only after an analysis of data expected to be obtained in censuses of 1970 and subsequent years.

154. Very obviously, death rates in the less developed regions are much higher than those in the more developed regions. In the former they may have averaged 19 per 1,000 in 1960-1965, and 16 per 1,000 in 1965-1970, whereas in the latter they are estimated at 9 per 1,000 for both periods. In this connexion it is worth pointing out that the youthful age compositions of populations in less developed countries can reflect even moderate progress in health conditions by considerable decreases in the death rates. The high and rising proportions of aged persons in more developed countries, on the other hand, set lower limits to the crude death rate that can be achieved there even under the best health conditions.

⁶⁶ Since the levels of crude death rates (deaths per 1,000 inhabitants) depend considerably on the age composition of each population, the expectation of life at birth is a much more suitable measure for an international comparison of mortality levels.

⁶⁷ Model life tables combine average levels of age-specific death rates corresponding to general mortality levels. They are widely used for purposes of demographic analysis and estimation. A relatively severe shortcoming in the use of these models is the fact that infant mortality rates can vary widely among populations of otherwise comparable levels of general mortality.

⁶⁸ This fact can be established as follows. For only about one-third of the world's population (mainly the more developed countries) is there a satisfactory registration of vital statistics. In these countries, on an average, the birth rate is only one-half that of countries with poorer statistics. And the average level of infant mortality, in countries of good statistics, is perhaps oneseventh to one-eighth the average level of the poorer countries. The proportion of the world's infant deaths entering adequate statistical records, therefore, may be approximately one in forty or fifty, i.e. between 2 and 2.5 per cent.
TABLE 12. ESTIMATES OF THE CRUDE DEATH RATE, 1960-1965 AND 1965-1970, AND EXPECTATION OF LIFE AT BIRTH, 1965-1970, IN MAJOR AREAS AND REGIONS OF THE WORLD

Areas and regions	Deat	h rate	Expectation of life
	1960-1965	1965-1970	1965-1970
World total	15.7	14.0	53
More developed regions	9.0	9.1	70
Less developed regions	18.8	16.1	50
East Asia	16.5	14.0	52
Mainland Region	18.3	15.3	50
Japan	7.3	7.0	71
Other East Asia	10.4	9.7	60
South Asia	20.3	16.8	49
Middle South Asia	20.9	17.2	48
South-East Asia	19.3	16.1	50
South-West Asia	17.4	15.6	51
<i>Europe</i>	10.2	10.2	71
Western Europe	11.0	11.0	72
Southern Europe	9.4	9.3	70
Eastern Europe	9.4	9.5	71
Northern Europe	11.2	11.1	72
Soviet Union	7.2	7.7	70
Africa	22.8	21.3	43
Western Africa	25.2	24.3	39
Eastern Africa	23.6	21.8 22	3 42
Middle Africa	26.1	24.3 23	39
Northern Africa	19.1	16.9	50
Southern Africa	17.9	17.4	48
Northern America	9.3	9.4	70
Latin America	10.9	10.0	60
Tropical South America	11.1	10.0	60
Middle American Mainland	11.2	10.1	60
Temperate South America .	9.3	9.1	65
Caribbean	12.0	10.9	58
Oceania	10.2	10.0	65
Australia and New Zealand	8.7	8.7	72
Melanesia	18.2	17.6	47
Polynesia and Micronesia .	10.5	8.8	61

155. As calculated, though unreliably, the average expectation of life at birth in less developed regions was probably about 47 years in 1960-1965, and probably about 50 years in 1965-1970. By how much this measure may have risen within the decade cannot now be assessed with much assurance, but there are many indications to the effect that the rise could have been considerable. A moderate rise in the high level of expectation of life in more developed regions can be estimated with assurance, and here this measure may average 69 years in 1960-1965, and 70 years in 1965-1970.

156. A close and increasing conformity can be noted in the high expectation of life among the more developed regions. Here, the essential benefits of modern measures of health protection have attained almost uniform levels. Among the developed regions distinguished in table 12, expectation of life varied between 65 and 72 years in 1965-1970. Death rates, however, varied more widely, mainly because the proportions of persons of advanced age are not yet so high in Japan and the Soviet Union (with death rates now near the level of 7 per 1,000), as they are, for instance, in Europe (where the death rate is 10 per 1,000 under otherwise comparable conditions).

157. Among less developed regions, death rates and expectations of life now cover a wide range. Despite undoubted recent improvements of health conditions in all those regions, it cannot be said that the range has narrowed. Since many of these estimates are rather unreliable, rigorous comparisons cannot be made. Nevertheless, differences are wide enough to give validity to some observations. It can be well asserted, for instance, that life expectations of 50 years have already been considerably surpassed almost throughout Latin America, and in certain areas of East Asia (China (Taiwan), Korea and the Ryukyu Islands). In Northern Africa and most of South Asia, life expectations probably are now approaching 50 years. In the tropical regions of Africa, on the other hand, it is not certain whether an expectation as high as 40 years has as yet been attained. Since the estimates in many instances are derived from earlier estimates and an assumed trend, it is doubtful whether expectations of life in various regions have risen with similar speed. According to available indications, the speed of progress is often greatest in the range of expectations between 45 and 55 years. Lower expectations of life appear to be associated with unfavourable economic and social conditions which, on their part, impede the spread of medical and health services. When comparatively high expectations of life are attained, progress may again be slowed down because further improvements are then impeded by rapidly rising expenditures in medical staff, hospital equipment, and so forth, not easily met where the financial resources are meagre. At the highest expectations of life — as those now prevailing in the developed countries - further progress is inevitably slow because existing medical and sanitary knowledge is already being used to a very wide extent and additional knowledge would depend on new discoveries. Detrimental features of the environment, such as congestion, air pollution etc., which often accompany high levels of urbanization and industrial development, should not be exlcuded as factors contributing to this stagnation.

158. As has been explained, the expectations of life — and these should be considered as the comparative measures of health conditions — are unequally reflected in crude death rates because of variations in the population compositions according to age groups. On the other hand, the crude death rates, in combination with crude birth rates, determine the rates of natural increase and — aside from possible migratory balances — the rates of growth for each population.

C. STILLBIRTHS AND INFANT MORTALITY

159. In most developed countries, the registration of vital statistics has achieved considerable degrees

of accuracy many decades ago. In those earlier decades, infarit mortality rates 69 were very high by modern standards, but in the course of subsequent economic and social developments, these have fallen to very low levels — sometimes only one-tenth or even less of what they had been under the earlier conditions. Throughout this period of drastic change, progressive decreases in infant mortality could be followed in the vital registers with at least a fair degree of accurary. Also in these countries changes in levels of infant mortality were found to be almost directly responsive to, and indicative of, variations in more specific economic, social and sanitary conditions. Hence, the detailed study of infant mortality has been found very valuable - and it continues to be so - as an essential indicator of subsisting problems of health and related social conditions.

160. It is only natural that the same degree of interest is now being expressed in the measurement of levels, trends and variations in infant mortality in less developed countries. No doubt, a more detailed knowledge of this subject would be very valuable. Unfortunately, however, this is a demographic measure which can seldom be estimated with a satisfactory degree of approximation in the absence of a well-functioning system of vital statistics registration. Such systems already existed in the more developed countries at a time when their rates of infant mortality were very high, but they are still lacking at this time in most of the less developed countries.

161. With observations regarding the varied influence of specific factors, mainly in the more developed countries, the study of infant mortality has been pushed much further. Aside from special techniques of measurement, distinctions have been made between rates of mortality in the first few days, weeks or months of life and those occurring during the remainder of the first year of life of the infants. The same factors associated with the deaths of infants immediately upon, or soon after, their birth have also effects on the survival of the foetus during the last few months of pregnancy. Hence there are also specialized studies of perinatal mortality, and these concern both the stillbirths occurring late in pregnancy and the infant deaths occurring soon after birth. Such studies have much importance in the organization of medical and related welfare services in the more developed countries. In most of the less developed countries they are as yet not feasible except under limited and unrepresentative conditions (for example, hospital statistics etc.).

162. This is not to say that information on infant mortality in less developed areas is altogether lacking. In a number of countries, rates of infant mortality are being published regularly, though the registration is of an unknown degree of completeness, or known to be deficient. In numerous sources, data obtained through more reliable registration in limited areas, or by means of special surveys, can be found. Some of these data may be quite accurate, but it is uncertain whether they represent the conditions in other segments of the population for which such records or investigations could not be obtained. It is certain that infant mortality in less developed countries is generally high, in most instances well above 100 per 1,000, in many instances near 200 per 1,000, and in at least a few instances even higher.

163. In some less developed countries with fairly good registration statistics, the infant mortality rates have already fallen to moderate or low levels. In China (Taiwan) the infant mortality rate in 1966 was reported as only 20.6 per 1,000 live births, this being a decrease from 30.5 in 1960.70 In three other Asian countries low or moderate rates have been reported, namely 22.9 in Hong Kong (1968), 24.8 in Singapore (1967) and 53.2 in Ceylon (1965). Infant mortality rates in this general range have been registered also in several countries of the Caribbean region, such as 32.5 per 1,000 in Puerto Rico (1967), 39.9 in Guyana (1966), 41.8 in Trinidad and Tobago (1966), 47.7 in Barbados (1966) and 48.0 in Surinam (1962). Except for some of the smaller islands, however, no other countries of Middle America or Tropical South America have an infant mortality rate lower than 50 per 1,000. In Africa, no country is found with an infant mortality rate lower than 100, with the exception of Mauritius (70.4 in 1968) and some other small areas such as Ceuta and Melilla, Réunion, and São Tomé and Príncipe.

164. In many of the less developed countries the infant mortality rates are now probably in the range from 100 to 200 per 1,000 live births. Even these levels represent considerable improvements when compared with the situation in most countries in the last century, and in many countries only a few decades ago. In this wide group it is possible to include most of Latin America, many parts of Asia, and Northern Africa. As for the remainder of Africa, the possibility is not excluded that the rates may still often exceed 200 per 1,000 though, admittedly, the available indications are too vague to provide a more accurate assessment. In most regions where infant mortality rates are still high, possibly even very high, they have been measured only sporadically or from unreliable and unrepresentative data. Very high rates have been indicated in various instances showing the possibility that they may still be widespread. Among such countries one may mention the Central African Republic, Chad, Guinea, Gabon, Mali and Zambia in Africa, Burma and Sikkim in Asia, and perhaps a few others. Because of uncertain levels and trends, an estimate of the average infant mortality of all the less developed regions can hardly be made now. Most probably it is decreasing, but on an average it probably still exceeds 150 per 1,000 to an undetermined extent. Apart from the unmeasured human suffering in an area with high infant mortality, there is a disastrous wastage of maternal health. From the demographic point of view, high infant mortality generally associated with high fertility is an irrational pattern of population dynamics.

⁶⁹ Numbers of deaths of infants aged less than one year per 1,000 births occurring during the same year.

⁷⁰ In this and other instances it can be doubted whether all the neonatal deaths have reached the registers.

165. Rather important differences persist in infant mortality among the more developed countries, and these are wider than the differences in their mortality levels at other ages. Around 1965 the lowest infant mortality rates were recorded in Sweden (12.9), Iceland (13.3), the Netherlands (13.4), Finland (14.2), Norway (14.6) and Denmark (15.8). These are also the countries which had achieved some of the most favourable general mortality conditions in recent decades. In the majority of the more developed countries the infant mortality rate is higher than 15 but lower than 35 per 1,000. Rates still exceeded 35 around 1965 in Hungary (37.0), Poland (38.1), Romania (46.6), Portugal (59.2) and Yugoslavia (61.4); less reliably recorded, the rates in Argentina, Chile and Uruguay were also near the upper end of this range.

166. Declines in infant mortality have continued in more developed regions also in recent years. For all more developed regions combined, the average level of the infant mortality rate decreased from 35 per 1,000 in 1960 to 28 per 1,000 in 1965. This included declines in the average rate of Australia and New Zealand from 20 to 19, in Northern America from 26 to 25, in Japan from 31 to 19, in the Soviet Union from 32 to 27, in Europe (without the Soviet Union) from 40 to 30, and in Argentina from 62 to 58. Different trends can also be noted within Europe, as in Northern Europe the rate declined from 22 to 20, in Western Europe from 30 to 22, in Eastern Europe from 49 to 35, and in Southern Europe from 54 to 44. The largest declines between 1960 and 1965, it will be noted, were those in Japan and Eastern Europe, by coincidence also the regions of the world which now have the lowest birth rates and frequent clinical abortions.

167. In the developed countries that led in the saving of infant lives, the decline in infant mortality has slowed down, while in some others it has continued to be rapid. In some countries, the heterogeneity of the population raises the average level of the infant mortality rate, particularly where underprivileged groups of the population with comparatively high rates also have comparatively high infant mortality.⁷¹ Nor is it certain in all countries with generally good demographic statistics infant that mortality is being registered with the same degree of precision. While registration improves, the published data may not reflect fully the speed of decline in the rate. On the whole, the trends suggest a gradual convergence of infant mortality rates of more developed countries towards a general low level.

168. The progress towards low infant mortality rates has been associated with especially sharp decreases in post-neonatal mortality, that is to say mortality between the first and twelfth month of life. Whereas many deaths of new-born infants are due to congenital causes and accidents of birth, post-neonatal deaths are attributable for the most part to exogenous factors, such as defective nutrition, neglect, or inadequate protection against diseases. In countries with the lowest infant mortality rates, between 70 and 80 per cent of all infant deaths now occur within the first month, but in countries where infant mortality is still comparatively high (for example, Albania, Argentina, Uruguay or Yugoslavia) a majority of the infant deaths still occur after the first month.

169. The neonatal mortality, being caused for the most part by endogenous causes of death, is not susceptible to very rapid reductions. Congenital malformations, ill-health of the mother during pregnancy, birth injuries, premature birth, and hereditary diseases all may impede progress in this area. Neonatal mortality rates in the range of 10 to 15 deaths per 1,000 live births prevail at present in the majority of developed countries with generally low infant mortality. In countries where general infant mortality is still comparatively high, rates of neonatal mortality are often in the range of 20 to 30 per 1,000. But concurrent with medical advances by which neonatal mortality may be halved, reductions in post-neonatal mortality can come into effect which decrease it from a very considerable to an almost negligible level.

170. The range of stillbirth ratios 72 around 1965 was between 8 and 20 per 1,000 live births in the more developed countries with fairly accurate statistics. Stillbirth ratios are also being registered in some less developed countries, but usually quite unreliably. As recorded in Mauritius and Réunion, they may be as high as 60 or 65 in some instances, but they are unlikely to be as low as 8 per 1,000 as recorded, for example, in the United Arab Republic.

171. The detailed statistics of the more developed countries permit much significant analysis of abortions, stillbirths, neonatal deaths and post-neonatal mortality, as related to a variety of bio-medical, sanitary, social and cultural circumstances. Some studies, such as in the United States, suggest that under satisfactory health conditions about 10 per cent of all pregnancies terminate in spontaneous abortions. In less developed countries, or in areas afflicted by particular diseases (for example, cholera, relapsing fever, malaria, syphilis), spontaneous abortions are probably more frequent.

172. Even if not yet measurable with any satisfactory degree of accuracy in most of the less developed countries, infant mortality is a phenomenon which is closely related to cultural attitudes and social practices. The care accorded to the conditions of pregnancy, delivery and the early nurture of a child is motivated by positive human values. Insufficient knowledge or means for the safeguarding of human lives in their formative stages can be conducive to behaviour and practices detrimental to a child's health and survival. Competent care, and the consequent decline in infant mortality, can signi-

 $^{^{71}}$ Because of a weighting effect, the infant mortality rate is much affected by levels prevailing among population segments of comparatively high birth rates. Its decrease to low levels implies that preventive measures have become available widely among all strata of the population.

 $^{^{72}}$ The stillbirth ratio is generally defined as the number of dead foeti — which have had at least twenty-eight weeks of gestation — per 1,000 live births. Accurate measurement is difficult because the exact period of time since conception will usually not be known.

ficantly modify prevailing cultural dispositions towards life and its values. Despite its often inadequate statistical treatment, this is a very important subject.

D. REGIONS OF LOW MORTALITY

173. As in regard to fertility, the more developed countries are also readily distinguishable from others by their generally low mortality level. With rather few exceptions, the more developed countries are those where the expectation of life at birth 73 now falls in the range of 67 to 73 years, and usually rather close to 70 years. Elsewhere, expectations of life are now calculated within the wide range from about 35 to about 65 years. The distinction is not so readily apparent in the crude death rates owing to variations in age composition of the respective populations. The death rate can be lower, for instance, in a high-fertility country when the expectation of life is 50 years than in a lowfertility country when it surpasses 70 years. It can be noted that among more developed countries the crude death rate ranged in 1965 between the extremes of 7.2 per 1,000 in Japan and 13.3 in Eastern Germany, although in those two instances the expectation of life at birth was nearly the same. In the extreme case of West Berlin, because of age structure of the population, the rate was even as high as 18.0 per 1,000 though public health and sanitary conditions were by no means inferior to those of more developed countries elsewhere.

174. The history which has produced the present disparities among the world's populations in respect of death differs from that by which the corresponding fertility trends have differentiated themselves. In the more developed regions, with varying leads and lags, early improvements in health, or reductions in death risks, were generally slow, and pertinent medical and sanitary knowledge, and the organizations of health services, were gradually accumulated in the course of time. Those countries in which appreciable progress began somewhat later were then able to draw on the experience already made elsewhere, hence their progress was more rapid. Cultural obstacles to the transfer of medical knowledge have often been noted, but they have not been very persistent once the benefits became evident. In this connexion, the social measures which have facilitated a full access to medical facilities on the part of lower-income segments of the population have been of special importance. Very great progress has also been made through education and social counselling services in the protection of the health and lives of infants and small children.

175. Consequently, health conditions have recently reached very nearly the same levels in all the currently more developed countries, though improvements in those conditions were started quite early in some countries and relatively recently in others. Differences still persist in certain specific respects, and these can have some importance, but in comparison with the large mortality reductions of the past, the continuing differences are rather slight. Since virtually all the more developed countries have come near to the forefront of modern medical and sanitary developments, the rate of further reductions in mortality has slowed down. Because of the rising proportion of persons of advanced age it is possible that crude death rates will no longer decline, but even rise slowly in many countries, despite continuing health improvements.

176. One feature of interest, commonly found in all the more developed countries, is the lower mortality and greater expectation of life of women as compared with men. The relative advantage of females over males, in this respect, is generally apparent throughout the life span from earliest infancy to the most advanced ages. Furthermore, in the majority of the observations, the death risks of women have continued to decrease more rapidly than the corresponding risks for men of the same ages. The detailed patterns and trends, however, vary appreciably from one population to another. Excess male mortality ⁷⁴ is of a varying extent and may attain a peak in one age range or another.

177. While common, the excess of male over female death risks cannot be accounted for by any simple explanation. It is possible that for strictly biological reasons the human female is generally better equipped to resist some of the hazards to health and survival. Psychological factors may also be present, such as possibly a greater disregard for personal health risks on the part of men. As compared with women, for instance, men tend to consume more tobacco and alcoholic beverages. Social factors may make an important contribution, since the lives of many women are often more sheltered from the exertions and risks of intensive social contact with attendant exposures to accidents and contagion of the socially more active men. Economic reasons should not be overlooked since men are still often engaged in occupations in which the hazards of certain diseases or accidents are particularly important. When safeguards against occupational risks were less extensive than they are now, this could have been a rather prominent circumstance. Finally, military and defence duties in war-time have impaired the health of many men. The consequently diminished resistance to certain death risks of this generation of men is still noticeable in the detailed mortality trends of various countries. The weight to be given to each of these several reasons, and possibly some others, may vary from one country to another.

178. Differences can also be noted among developed countries in the more detailed age patterns of mortality. In some countries, particularly those where mortality had fallen low already a considerable time ago, mortality rates in infancy, childhood and early adulthood are decidedly lower than in others, though the expectation of life at birth is nearly the same. On the other

⁷⁴ This can be defined either as the difference, or as the ratio,

⁷³ Average expectations for both sexes combined.

between specific death rates of males and females in the same age groups.

hand, the more developed countries also differ considerably in death risks specific for more advanced ages. Some relationship between mortality risks earlier and later in life may exist, but the nature of that connexion is debatable. On the one hand, in a generation of individuals who had survived their childhood and adolescence in a healthful and well-protected environment, physiological impairments and debilities may be comparatively few and death risks later in life may also be consequently reduced. On the other hand, many lives may also have been saved by medical and protective means resulting in a survival to subsequent ages of more numerous individuals of a congenitally poorer constitution whose resistance to diseases and other hazards later in life is not so strong. For these and other reasons, including social, economic, cultural or psychological circumstances, the noted differences in specific mortality patterns from one country to another cannot be explained very simply. They are important, nevertheless, as indications for different priorities to be assigned to medical, sanitary and other social investments intended to deal with particular problems.

179. As a result of the developments here described, the outstanding mortality problems in the more developed countries have become more limited. Chronic diseases, notably those of the circulatory system, and cancer or other neoplasms, now take the heaviest toll in lives, particularly at mature and advanced ages. In some instances, death rates attributable to these specific causes have actually risen, and generally it must be admitted that mortality reductions at advanced years of life have been relatively slight, and in some instances negligible. Those problems are perhaps irreducible without significant new discoveries in specific medical knowledge and technique. Deaths due to accidents, notably motor vehicle accidents, and other violent deaths, are another area where recent progress has not been noteworthy. In some countries of generally very low child mortality, motor vehicle accidents are now a leading cause of death for children. Deaths related to socio- and psycho-pathological conditions, such as alcoholism and consequently frequent cirrhosis of the liver, are a continuing cause for much concern. The remedy may have to be found in social as well as medical terms. The greater proclivity of men than of women to this type of pathology -- reflected also in a greater frequency of male suicides - may be suggestive of some of the conditions causing a widening between male and female mortality rates.

180. Another question on which few comparable investigations have been made, is whether there has been a significant change in the general incidence of morbidity. Children and persons in their prime working years generally are now in a much better average state of health than ever before. Because of modern drugs, far less time is spent in sickness or disability and medicines and surgical or prosthetic techniques facilitate much more rapid recoveries than previously possible. The expected span of life in a state of good health has accordingly been extended. It is to be noted, on the other hand, that in the more developed countries the proportion of the population at advanced ages is high and still rising. Even with good medical and curative facilities, the incidence of morbidity with rising age is inevitably high. It is uncertain, therefore, whether under modern conditions the average life span spent in an impaired state of health has been diminished or rather postponed to a later phase of life. Geriatric problems may remain as extensive as ever despite the improved health of the general population.

E. REGIONS OF MODERATE TO HIGH MORTALITY

181. Mortality levels now prevailing in the less developed regions cover a wide range. The recent rates of progress are not well determined. Where fertility is high and most of the population youthful, crude death rates can be compared as well as the estimated expectations of life. Comparison is thereby facilitated for at least those high-fertility countries where vital statistics are somewhat reliable.75 Mortality is now highest and expectations of life are shortest, in Africa, especially in its tropical regions, and perhaps also in Melanesia. It is also high, though already noticeably reduced, in northern Africa and most parts of Asia other than the notable exceptions of Ceylon, China (Taiwan), Cyprus, Hong Kong, Israel, Japan, Malaysia and Singapore. In most of Latin America, appreciable improvements in health conditions have been made for some time, and in these instances, as also in certain areas of Asia, it can be said that mortality has fallen to a moderate level. Because of the large proportions of children and young people, death rates in the lastmentioned areas are now quite low, and sometimes lower than in any of the currently more developed countries.

182. Actions in the fields of public health and environmental sanitation, both at national and international levels, have been greatly intensified in virtually all the less developed countries, and it is certain that in almost all these countries mortality has continued to decrease with at least an appreciable speed. In most of them, sufficiently accurate or detailed statistics are now lacking, hence it cannot be clearly determined in which parts of the world the most rapid progress is being made. Fair conjectures implicit in the population projections calculated in these countries assume the continuation of considerable progress. It is possible that geographical and transportation impediments still prevailing in Africa, and the rising costs of advanced medical facilities now being incurred in Latin America, cause progress to be most rapid at this time in many parts of Asia, perhaps also northern Africa. These areas are now at an intermediate mortality level in terms of the present comparison. Whether this is in fact the present experience cannot be determined until the results of new censuses, after 1970, permit a more accurate analysis of recent trends.

⁷⁵ Roughly speaking, crude death rates corresponding to given expectations of life are rather similar in populations of high fertility. The effects of age composition on the death rate are more pronounced where fertility has declined considerably, or where it is low.

.'83. More detailed and accurate indications can now be given concerning recent trends in countries with at least fairly good vital statistics registers. Those, however, are not the countries with the largest populations, nor with local conditions representative of those prevailing in larger areas. On the whole, circumstances which have facilitated an adequate organization of vital statistics registration are also favourable for a more efficient organization of public health activities. Hence the countries with good statistics tend to be those in which mortality is now at least comparatively low.

184. In the history of mortality trends, a decisive turning point was reached within the few years immediately following 1945. New methods of sanitation and immunization, and efficient services for administering them, then became available on a large scale. More progress than that actually shown might have been feasible technically, but what might have been achieved in the 1930s and up to 1945 was probably retarded, first by the economic depression which dislocated financial resources in most of the world, and then by the war. All the more sudden was the release of new means and methods that effectively reduced the prevalence of killing diseases and avoidable deaths in the years following 1945. Progress was most rapid in areas offering particularly favourable administrative conditions and relatively few geographic or cultural obstacles.

185. Though not unique, the most spectacular achievement was the rapid reduction in the death rate for Ceylon — from 21.8 per 1,000 in 1945 and 19.8 in 1946, to 14.0 in 1947 and 12.9 in 1948. By 1965, Ceylon's death rate was as low as 8.2 per 1,000.76 This drop, especially sudden between 1946 and 1947, was associated with the widespread application of DDT as a means of malaria control. As a result, not only was there a rapid and almost complete elimination of deaths and morbidity directly attributable to malaria, but also of other diseases, some of them borne by the same or other insect vectors, of similar indoor resting habits, and still other diseases easily incurred by chronic sufferers of malaria. Very rapid and substantial mortality reductions, in a similar context, have also been recorded in several other areas (for example, Malaysia, Mauritius, Sardinia and Guatemala). Nevertheless, this is a subject of some complexity because of the interdependence of malaria with other diseases, and the varying rates of progress feasible under different administrative, economic, social and cultural conditions.77

186. Since these experiences, many Governments, stimulated by the WHO global programme, have embarked on malaria eradication campaigns. Under diverse administrative, financial and technical conditions, the campaigns have been carried out with greater speed in some regions than in others, and by this time a majority of the high-malaria areas of the world are virtually malaria-free. Other campaigns concerning major killing diseases, such as cholera, typhus, smallpox, dysentery or yellow fever have been pursued with comparable vigour and enterprise. It is difficult to assess the exact reduction in death rates or increases in life expectation as the result of any one of those actions, but it is certain that the combined effect has been large. Public education in matters relevant to health protection, environmental sanitation, nutrition, child care, and so forth, without doubt, has also played a large role, in additions to increased expenditures in personnel, facilities and medical supplies by which these improvements of health were implemented.

187. The psychological and cultural factors related to improvements in public health cannot be statistically assessed, but there is much consensus, based on the actual experience, that these can be striking. On the one hand, certain social and administrative predispositions can facilitate the co-operation needed in the population at large so that the benefits of modern improvements become rapidly applicable. On the other hand, as a consequence of improved health and reduced mortality, widespread attitudes of lethargy or fatalism can be substantially modified, producing more energetic attitudes in the general population regarding constructive endeavours in economic and social activity. It is possible that under visibly changing conditions of health, a reassessment can also occur in the area of family planning or the spacing of births. For instance the fear that many children might die before reaching maturity can be reduced or eliminated. Changing reproductive norms in China (Taiwan), another area where mortality decreases have been most conspicuous, may be one such example. The part played by each of many factors in the course of demographic change, some of them quite intangible, cannot be measured with conventional statistics.

188. More specifically, improvements in health conditions are being secured through the strengthening of adequately staffed medical and paramedical services. In this field, though relevant, the past experience of more developed countries does not always provide the most suitable examples to be followed under new conditions. Priorities can differ, as sometimes a larger measure of health protection may be effected by mobile teams employing semi-qualified medical staff than by more substantial investments in existing centrally situated hospitals under the direct supervision of highly qualified medical doctors. It has been observed in many developing countries that it is difficult to provide a wide geographical distribution of medical services meeting the highest standards, despite its undoubted value. No strict generalization can be made, and it must be noted that countries differ widely in the relevant concrete circumstances, and also in the measures and priorities accorded by their respective Governments to medical services of differing types. The partial interdependence of health with economic conditions, education, housing, nutrition and particular forms of social organization is also variously taken into these considerations. Generally speaking, the organizational problems are more difficult in rural than in urban areas. Uncon-

⁷⁶ The registration of deaths in Ceylon is believed to be nearly, but not quite complete. Actual rates may have been slightly higher.

⁷⁷ S. A. Meegama, "Malaria eradication and its effect on mortality levels", *Population Studies*, vol. XXI, No. 3 (1967), pp. 207-237.

trolled urban growth, on the other hand, can also produce unprecedented sanitary problems.

189. The detailed mortality patterns in presently less developed regions often differ appreciably from those observed either recently or at an earlier time in the more developed regions. While the statistics for many areas are not accurate enough for systematic comparison, a few observations are now sufficiently substantiated.

190. In several less developed countries life expectation at birth is longer for males than for females. Although not very accurately measured, this situation is in sharp contrast with the opposite observations made in the more developed countries and many of the remaining less developed ones. Quite definitely the sources indicate excess female mortality in Ceylon, India and Pakistan, and also in Upper Volta. The existing fragmentary data on age composition at various times and in various areas on the mainland of China suggest that there also female mortality may exceed that for males. If this is true, then of greater female than male mortality may still characterize virtually one-half of the world's population. Even if not, the generalization so often made from the reliable registration statistics of more developed countries, namely that women tend to outlive the men, is far from universaly applicable now. There are also numerous countries where, according to data of greater or lesser reliability, differences between male and female life expectation are only slight or negligible.

191. The causes of a greater female than male mortality in certain areas are not well known. Among the possible reasons could be certain consequences from social disadvantages for women, or social customs entitling the men to more adequate diets or other living conditions than those accorded to women. The possibility of a different distribution of genetic endowment between the two sexes — giving men a greater in these instances causing resistance to diseases — can neither be proven nor refuted in the present state of knowledge. On the other hand, considerable evidence suggests that maternal mortality is a major factor. Though not very accurate, statistics indicate that female mortality in these areas, as compared with that for men, is particularly excessive in the ages of reproduction. To the extent that this is a correct conjecture, an important problem subsists in the protection of women during pregnancy and childbirth.

192. In many other countries excesses of female over male mortality were registered at least within certain age groups, most often for children aged 1 to 4 or 5 to 9 years, and sometimes also in age groups within the childbearing period. Some of these data may be affected by statistical errors in registration or age statement; nevertheless, the observations are widespread enough to be noteworthy. Below the age of 10 years, the mortality of girls exceeds that of boys in many Asian countries such as Burma, Ceylon, India, Jordan and West Malaysia, and the excess is particularly large in Pakistan. A greater mortality for girls than boys also occurs in many Latin American countries, namely in Chile, Costa Rica, Colombia, Ecuador, Guadeloupe, Guatemala, Martinique, Mexico, Peru and Venezuela; in at least a few African countries, including Madagascar, Mauritius and the United Arab Republic; and even in Europe, namely in Albania and some parts of Yugoslavia. Countries where female mortality in some of the childbearing age groups exceeds that of men of equal age include: Ceylon, India, Pakistan and West Malaysia in Asia; Costa Rica, Guatemala and Peru in Latin America; and Tunisia. The particular causes reflected in these observations are not well investigated and may be of a sociological or cultural nature. Social customs perhaps afford greater protection for the health of boys over girls, at least in the countries concerned.

193. A trend can also be noted. According to early observations, excessive female mortality (relative to that of males) extended over also the ages of childbearing, but the age span over which the death rates for women exceeded those of men has been progressively reduced, and recently is has remained confined mainly to childhood. A similar statistical phenomenon was noted in the past history of some currently more developed countries, and even fairly recently in Ireland and Japan. This was one attributed to a particular susceptibility to tuberculosis among young women, but it is uncertain whether the analogy is pertinent.

194. Other problems, not yet systematically investigated, concern mortality during infancy and early childhood. In some regions, for instance in parts of Africa, it appears that the mortality of children is especially high not only during their infancy but also in their second year of life. Again, it must be pointed out that the statistics are far from precise, hence this special feature cannot yet be measured with accuracy. It is possible that children about the age where they begin to walk are exposed to special hazards, and also that special problems of nutrition occur after they are weaned from the mother's breast where, owing to the climate and a lack of storage facilities, particular types of food cannot be easily preserved. It is also possible that, as new infants are born in short succession, mothers of new infants are not able to give the desired care to children born earlier. Whatever the reasons may be, a closer investigation of this problem could be of considerable importance.

195. If there were more accurate statistics concerning the age patterns of mortality in less-developed countries, various other problems might come to light and the further clarification of these could have much social and medical relevance. With the existing wide variety of economic levels, social conditions, and cultural traditions, it is quite likely that these problems differ much from one area to another. A major obstacle to more detailed study are the inaccurate reports on age in the populations of many of the less developed areas.

F. AREAS OF SPECIAL PROGRESS, 1960-1965

196. A few circumstances affecting the general mortality situation in the world have been mentioned in the foregoing. In the more developed countries,

where life expectation is already very high, as has been noted, additional progress is now almost inevitably slow. In less developed regions, it can well be presumed that progress has been greatest often in those countries having comparatively accurate statistics. Observations in this section of the chapter are confined to countries selected on that basis, though they may not be representative of conditions elsewhere. Since all are countries where, owing to hitherto high birth rates, the proportions of older people are rather small, a comparison of their crude death rates in 1960 and 1965 is adequate.

197. According to incomplete registration, the death rate in the United Arab Republic decreased from 17 per 1,000 in 1960 to 15 in 1965. If the extent of omissions in registers has remained constant, this may reflect rates of about 22, and 19, for the two dates. Elsewhere in Africa, excepting European or some other minority groups, extensive vital registration is generally not effective, but reliable vital statistics exist for a few unrepresentative islands. Between 1960 and 1965 the death rate decreased from 15.6 to 10.6 in the Cape Verde Islands, from 11.2 to 8.6 in Mauritius, from 11.5 to 9.3 in Réunion, and from 20.7 to 15.8 in São Tomé and Príncipe. The possibility of rapid decreases to levels of 10 per 1,000 or below is thereby indicated at least for limited areas.

198. Fairly reliable vital statistics exist for many, but not all, countries of Middle America and the Caribbean. In Mexico, which is the largest, the death rate decreased from 11.2 per 1,000 in 1960 to 9.5 in 1965. A much higher rate persists in Guatemala (17.3 in 1960) and 16.8 in 1965), and a slightly higher one in El Salvador (11.3 and 10.6 at the two dates), whereas in Costa Rica (8.6 and 7.2) and Panama (8.0 and 7.0) the rates are considerably lower. Rates are of similar levels in several countries of the Caribbean, for example, the Dominican Republic (8.9 and 7.1), Jamaica (8.8 and 8.0), Guadeloupe (9.7 and 8.1) and Martinique (9.4 and 7.3). At the current level of health investments in this region, however, the decrease in the death rate may slow down when a level of about 7 per 1,000 has been reached. In Trinidad and Tobago, the rate has fallen from 7.9 in 1960 to 6.3 in 1965, but in Puerto Rico it has ceased falling, and the rate was 6.6 in 1960 and 6.7 in 1965.78

199. In Venezuela and the Guyanas, similar conditions prevail. In Guyana, for instance, a death rate of 9.2 per 1,000 was registered in 1960, and of 7.3 in 1965. Rather advanced health conditions had been attained in Venezuela in the 1950s, and death rates of 7.1 per 1,000 were registered there both in 1960 and 1965. Elsewhere in the less developed countries of South America, the registration of vital statistics is not so satisfactory, but indications of the trend can be obtained from the more or less approximate data for a few countries. As incompletely recorded, the death rate in Colombia fell from 11.1 in 1960 to 9.9 in 1965, in Ecuador from 14.0 to 11.7, and in Peru, from 11.4 to 8.8. The actual levels were probably somewhat higher. Chile, at a more advanced level of economic development, has more reliable statistics, and there the death rate was 12.4 per 1,000 in 1960, and 10.6 in 1965. Death rates are evidently slightly higher on an average in South America than they are in Middle America, but the trend suggests no major obstacle in the near future for decreases at least to an average level of about 10 per 1,000, if not even below.

200. In the comparatively limited areas of Asia (other than Japan) where vital statistics are being recorded with satisfactory accuracy, remarkable decreases in death rates have been observed recently. In Aden, for instance, the death rate decreased from 9.6 to 8.2 between 1960 and 1965, and in Ceylon from 8.6 to 8.2. It decreased more rapidly in Western Malaysia, from 9.5 to 7.9, and in Brunei from 10.9 to 6.6. Slower decreases are noted only where the death rates have fallen very low, in fact to the lowest levels now reliably recorded anywhere in the world. These instances are in Singapore (6.3 in 1960 and 5.6 in 1965), China (Taiwan) (6.9 and 5.5), the Ryukyu Islands (as low as 5.3 per 1,000 for both dates), and Hong Kong (6.2 in 1960 and 4.8 in 1965). While these figures include some of the lowest death rates ever accurately recorded in the world — and similar low death rates are now found also in some of the Pacific Islands — the peculiar combination of conditions must be held in view. Health levels almost approach those of the more developed countries (life expectation near 65 years) while, owing to high birth rates in the past, relatively few individuals are of advanced age. In some of these areas of record low death rates, however, the onset of a decided decline in birth rates is already clearly indicated.

201. For the much larger populations on the Asian and African mainlands, death rates are undoubtedly much higher than those in the above-cited areas, but probably they are also decreasing with fairly appreciable speed. The tempo of that decrease, and the levels which can be foreseen for the near future, will be assessed more accurately a few years hence when the results of new censuses permit the necessary calculations.

202. It can fairly be concluded that aside from those areas in the forefront of mortality declines to the lowest levels, this phenomenon has now assumed a universal and irreversible character. One immediate consequence is a more rapid growth of populations. There is the possibility that decreasing birth rates will eventually offset the present accelerations of population growth, but this is not likely to become a very momentous trend until a few decades hence. In the meantime, and while new demographic balances in the world are yet to emerge, the mortality decrease itself, improved health, and the associated social and cultural phenomena may set into motion some of the energies and resolves by which much-needed economic and social changes might be carried out more effectively.

⁷⁸ In part this may be due to a change in age composition.

IV. NATURAL INCREASE

A. AVAILABILITY OF DATA

203. Natural increase being an excess of births over deaths, information on the former obviously depends upon the availability of information on the two latter. If either fertility or mortality data are insufficient, data on natural increase are also lacking or deficient. It may be noted, however, that in regions and countries where external migration is of negligible importance and where population increase is therefore equivalent to natural increase, information on the latter can be derived from population counts taken at different dates, assuming that such counts are of approximately equal accuracy.

204. In countries with reliable statistics, the amount of natural increase for the population is obtained as the net difference between the recorded numbers of births and deaths, and the corresponding rates are computed from the absolute numbers. Methods for estimating basic demographic parameters for countries with deficient data, however, are oriented towards obtaining measures of birth and death rates, and rarely provide absolute figures of births and deaths or of the natural increase in population. Consequently, the numbers of births, deaths and natural increase must be derived from the respective rates, and are therefore only approximate.

205. Reliable data on natural increase are available for Europe, the Soviet Union, Northern America and for a limited number of countries in other regions of the world. Broadly speaking, reliable data exist for the more developed regions and are lacking for the less developed regions. The share of the natural increase for the latter regions is about 85 per cent of the natural increase of the world's population. It follows that the discussion of natural increase is more an indication of orders of magnitude than an account based on the precise measurement of recent trends.

B. GLOBAL TRENDS

206. Speaking very generally, it has already been noted that the more developed regions are those of low to moderate levels of fertility, and the less developed regions those of high levels of fertility. Again, it would seem fair to say that the more developed regions are those of almost uniformly low mortality, while the less developed regions now present a rather wide range of moderate to high mortality levels, and in some cases even quite low mortality. The levels of natural increase differ widely under such circumstances, but the dichotomy between the more developed and the less developed regions is nevertheless apparent.

207. The rates of natural increase in population obtained by subtracting the crude death rates of table 12 from the crude birth rates of table 11 are presented in table 13. The estimated rate of natural increase for the world's population continued to increase during the periods under consideration as a consequence of the interplay of crude birth and death rates within regions and individual countries.

208. The upward trend of natural increase which has been experienced most notably in the 1950s brought the world's annual excess of births over deaths to 61 million in 1960-1965 and to 68 million in 1965-1970. The increase in the world's total population throughout the 1960s has apparently been near an annual 2.0 per cent. By the end of the period under consideration, natural increase is estimated to occur at the highest rates in Northern Africa, Tropical South America, the Middle American mainland, and in Polynesia and Micronesia. Among the less developed regions, only the East Asian mainland is estimated to increase at annual rates of less than 2 per cent.

209. Declines in the rate of natural increase are clearly on record in all the more developed regions, with the exception of Japan, that country had a slightly higher rate in 1965-1970 than in 1960-1965. Except in Temperate South America, where natural increase still occurs at a level of 1.7 per cent, none of the more developed regions had a natural increase greater than 1.1 per cent in 1965-1970, a rate which was still exceeded in 1960-1965 in the Soviet Union and Northern America. The combined rate of natural increase, in the more developed regions, diminished from 11.5 to 9.5 per 1,000 (1.15 and 0.95 per cent). Nearly all regions of Europe have attained very low rates of natural increase - about 7 per 1,000, except in Southern Europe, where the average was 10 per 1,000. Rates of natural increase of Australia and New Zealand, Japan, Northern America and the Soviet Union are now at approximately the same level as those in Southern Europe. Northern America and the Soviet Union have experienced a rapid decline in their natural increase rates, primarily owing to declines in their crude birth rates. The only region classified among the more developed regions which had a moderately high rate of natural increase (around 17 per 1,000) in both 1960-1965 and 1965-1970 was Temperate South America.

210. The heterogeneity of the world's regions in respect to rates of natural increase was even more impressive in 1965-1970 than in 1960-1965. In 1960-1965 the regional rates ranged from 7 to 33 per 1,000,

40 —

Areas and regions	Rates, p	per 1,000	Average annual amounts (millions)		
citus una regions	1960-1965	1965-1970	1960-1965	1965-1970	
	10.4	10.9	(1.1	69.2	
World total	19.4	19.8	01.1	00.2	
More developed regions	11.5	9.5	11.5	10.0	
Less developed regions	23.2	24.5	49.6	58.2	
East Asia	17.5	17.5	14.4	15.5	
Mainland region	17.8	17.8	12.1	12.9	
Japan	9.9	11.0	0.9	1.1	
Other East Asia	28.3	25.0	1.4	1.5	
South Asia	24.8	27.5	23.1	28.6	
Middle South Asia	24.5	27.2	15.6	19.1	
South-East Asia	25.3	28.1	5.9	7.5	
South-West Asia	26.4	28.2	1.6	2.0	
	8.4	7.8	3.7	3.4	
Western Europe	7.2	6.3	1.0	0.9	
Southern Europe	11.3	10.1	1.4	1.2	
Eastern Europe	8.1	7.8	0.8	0.8	
Northern Europe	6.7	6.6	0.5	0.5	
Soviet Union	15.2	10.2	3.4	2.4	
Africa	24.1	25.5	7.0	8.3	
Western Africa	23.8	24.5	2.2	2.6	
Eastern Africa	22.8	24.8	1.8	2.1	
Middle Africa	18.9	21.0	0.6	0.7	
Northern Africa	28.4	30.0	2.0	2.4	
Southern Africa	22.4	23.3	0.4	0.5	
Northern America	13.4	9.8	2.7	2.2	
Latin America	28.2	28.4	6.6	7.6	
Tropical South America	29.6	29.8	3.8	4.3	
Middle American Mainland	33.4	33.6	1.7	2.0	
Temperate South America	17.5	17.2	0.6	0.7	
Caribbean	24.7	24.1	0.5	0.6	
Oceania	16.9	14.5	0.2	0.2	
Australia and New Zealand	13.9	11.5	0.2	0.2	
Me ⁱ anesia	24.2	24.1	0.0	0.0	
Polynesia and Micronesia	31.1	30.9	0.0	0.0	

TABLE 13. ESTIMATED RATES AND AVERAGE ANNUAL AMOUNTS OF NATURAL INCREASE, 1960-1965 AND 1965-1970, IN MAJOR AREAS AND REGIONS OF THE WORLD

and in 1965-1970 from 6 to 34 per 1,000. This widening of the range reflects an upward tendency for natural increase rates in many of the less developed regions. The economic and social implications of this heterogeneity and differentiation, particularly for the less developed regions, are fairly well known. In terms of population growth, those regions with a rate of natural increase of 3 per cent per annum may double their population in 23 years, and those with 1 per cent in 70 years.⁷⁹

211. The rates of natural increase now estimated imply that world population increased annually by an average of 61 million in the first half, and by 68 million in the second half of the decade. About 110 million babies were born annually during 1960-1965, and about 116 million during 1965-1970. The number of annual deaths, meanwhile, receded slightly, from 49 million in 1960-1965 to 48 million in 1965-1970. These figures for the world total are the result of divergent trends in more developed and less developed regions. In the more developed regions, the number of births diminished (from an annual 20.5 million to 19.6 million) and the number of deaths increased (from an annual 9.0 million to 9.6 million). The opposite happened in the less developed regions, where the annual number of births increased (from about 90 to about 96 million), and the

⁷⁹ A simple formula relates the rates of growth to the time period in which the growing quantity is doubled. For any given rate of growth, the period of doubling is 69.32 years, or nearly 70 years, divided by that rate.

number of deaths diminished (from 40 million to about 38 million). The acceleration in the less developed regions outweighs the slow-down in the more developed regions.

212. The factors contributing to the change in fertility and mortality were already discussed in chapters II and III, together with the influence of age structure on these rates. The interplay of these factors and the empirical relations between numbers of births and deaths in the two groups of regions are, of course, reflected in the amount of their respective increases in population. An increment in world population growth of 12 per cent between these two five-year periods was brought about by a 17 per cent larger absolute natural increase in the less developed regions and a 13 per cent smaller natural increase in the more developed ones. This trend also changed the share of the world natural increase occurring in the two groups of regions between 1960-1965 and 1965-1970. In 1960-1965 the less developed regions accounted for 81 per cent of the world natural increase, and the more developed regions for 19 per cent; in 1965-1970, the share of the former was 85 per cent and that of the latter 15 per cent. Small gains in the share of the world natural increase were estimated in Africa and Latin America, while in Asia massive gains were assessed. On the other hand, significant losses in the share of the world natural increase occurred in Northern America and the Soviet Union, and moderate losses in Europe, Australia and Temperate South America.

213. This five-year change may not be indicative of trends likely to persist over a longer time period, since demographic factors such as changes in population sex and age structure and changes in socio-economic conditions associated with development are likely to affect the components of natural increase. Furthermore, future population trends may be significantly altered as a result of governmental policies designed to moderate population growth rates.

C. COUNTRY TRENDS

214. It has already been pointed out that the pattern of natural increase in the world's population is both diverse and complex at this critical stage in history. It is well-known that a low rate of increase can be the result of high mortality and high fertility, as well as of low mortality and low fertility. A high rate of natural increase may result from very high fertility and moderate mortality, or moderately high fertility and low mortality. What is less often realized is that a declining rate of natural increase may still be accompanied by growing absolute numbers of natural increase under some specific circumstances. Thus, countries which have been successful in bringing down their rates of population growth may still be faced with the problem of providing for a larger increment of population in absolute numbers each year. Such a situation has been experienced by a number of less developed countries during the 1960s - a period of particularly diversified patterns of natural increase among national populations.

215. Table 14 shows the variations which have occurred in natural increase and its components in a number of selected countries, both industrialized and economically less advanced. Only countries having fairly accurate statistics have been included in the table, and the range of the demographic variables shown is not fully representative of current world conditions, since countries having high rates of natural increase are frequently those with poor demographic statistics. Of the five developing countries included in the table, most have already achieved a moderate degree of economic and social advancement, all have experienced declines in mortality, and some, declines in fertility as well. There are no countries listed which have a crude birth rate higher than 45 per 1,000, nor a crude death rate higher than 10 per 1,000, though in actual fact birth rates above 45 and death rates in the range of 15 to 20 per 1,000 are not uncommon

Table 14. Numbers and rates of births, deaths and natural increase, 1960-1965, in selected countries listed in descending order of 1965 rates of natural increase

		(Numbers in thousands)						Rates per 1000 population					
Country	Bi	rths	De	aths	Natural	increase	Bi	rths	De	aths	Natural	increase	
	1960	1965	1960	1965	1960	1965	1960	1965	1960	1965	1960	1965	
Mexico	1,608	1,888	403	404	1,205	1,484	44.6	44.2	11.2	9.5	33.4	34.7	
Panama	42	47	8	9	33	39	41.0	39.4	8.3	7.3	32.5	32.1	
W. Malaysia	283	295	65	64	217	231	40.9	36.7	9.5	7.9	31.4	28.8	
Singapore	63	57	10	10	53	48	38.7	31.1	6.3	5.6	32.4	25.5	
Ceylon	362	369	85	92	277	278	36.6	32.9	8.6	8.2	28.0	24.7	
Spain	660	674	268	274	392	400	21.8	21.3	8.8	8.7	13.0	12.6	
Japan	1,606	1,824	707	700	899	1,124	17.2	18.6	7.6	7.2	9.6	11.4	
USSR	5,341	4,253	1,529	1,690	3,812	2,563	24.9	18.4	7.1	7.3	17.8	11.1	
United States of America	4,258	3,760	1,712	1,828	2,546	1,932	23.7	19.4	9.5	9.4	14.2	10,0	
France	820	866	521	544	299	322	17.9	17.7	11.4	11.1	6.5	6.6	
Czechoslovakia	217	232	125	141	92	91	15.9	16.4	9.2	10.0	6.7	6.4	
Sweden	102	123	75	78	27	45	13.7	15.9	10.0	10.1	3.7	5.8	

_ 42 __

among countries in developing regions, and death rates as high as 25 per 1,000 are estimated for some parts of Africa.

216. Rates of natural increase for national populations currently range from about 5 per 1,000 to a high of 40 per 1,000. Rates of natural increase as high as 10 per 1,000 (4 per cent per annum) are rather rare, since they require a crude birth rate of about 50 per 1,000 (corresponding to a gross reproduction rate of about 3.4 or more) and a crude death rate of about 10 per 1,000 (corresponding to an expectation of life at birth of about 55 years).

217. The highest rate of natural increase shown in table 14 is that of Mexico, which in 1965 was nearly





- 43 -

35 per 1,000, based on a crude birth rate of 44 per 1,000 (equivalent to a gross reproduction rate of 3.1) and a crude death rate of 10 (corresponding to an expectation of life at birth of about 57 years). Such a pattern is found rather frequently, particularly in Latin America. The rates of natural increase shown for Ceylon (25 per 1,000) and West Malaysia (29 per 1,000) are about equivalent to the average rates for countries in South Asia and South-East Asia, respectively, though these two countries have experienced greater fertility and mortality decline than have most other countries in those regions.

218. Among the countries from developed regions included in the table, rates of natural increase in 1965 range from a high of 13 per 1,000 in Spain to a low of 6 per 1,000 in Czechoslovakia and Sweden. The range was much wider in 1960 — from 18 per 1,000 in the Soviet Union to 4 per 1,000 in Sweden. Sweden's very low natural increase rate in 1960 was attained with a crude birth rate of 14 per 1,000 (a gross reproduction rate of 1.1) and a crude death rate of 10 per 1,000 (life expectancy at birth about 74 years).

219. A larger absolute natural increase was estimated in 1965 than in 1960 in most countries in the developing regions, and this was true even in those countries where the rates of natural increase may have declined somewhat. In the table, this situation is best illustrated by the case of West Malaysia, which experienced a moderate decline in its natural increase rate — from 31 to 29 per 1,000 between 1960 and 1965, though the added annual increment to the population was larger in the latter year than in the former. Ceylon and Panama also showed the same or higher absolute increments to the population, despite lower rates of natural increase. In Mexico, both the absolute number and the rate of natural increase were higher in 1965, while in Singapore the substantial decline recorded in fertility and natural increase was sufficient to reduce even the absolute increment to population growth. While there are a few other instances (for example, Hong Kong) where a rapid decline in the rate of natural increase has reduced the absolute natura lincrease as well, the more typical situation has been for the absolute annual increments to rise.

220. Only a small number of countries in the developed regions had a substantially larger natural increase in 1965 than in 1960. Among them were Japan (1,124,000 in 1965 compared with 899,000 in 1960) and Sweden (45,000 in 1965 compared with 27,000 in 1960). France also showed a slight rise in natural increase — from 299,000 in 1960 to 322,000 in 1965. On the other hand, very substantial declines were recorded in the Soviet Union (from 3,812,000 to 2,563,000) and in the United States (from 2,546,000 to 1,932,000). A decline from the moderately high fertility still prevailing in the latter countries in 1960 was responsible for the decline in natural increase.

V. POPULATION PROSPECTS

A. AVAILABILITY OF POPULATION PROJECTIONS

221. Because of the need for information on the probable future trends in population size and structure, the United Nations has for some years been engaged in preparing population projections for the world and its principal regions, as well as for individual countries.80 These projections, first prepared in the 1950s, have been continuously reviewed and revised in the light of new facts and improved methodology. The latest published report in this field was World Population Prospects as Assessed in 1963. An interim revision of the projections published in that report has been undertaken to provide more up-to-date and detailed information required for studies to be carried out for the Second United Nations Development Decade. The new projections have the year 1965 as their starting point and cover the period up to 2000.

222. The 1965-1985 projections have been prepared on a country-by-country basis, and are provided by five-year age groups for each sex, and by single years of age within the age span from five to twenty-four years. National projections have been used wherever these were available in reliable form, as was the case for most of the world's more developed countries. For the developing countries, four variants were prepared, based on different combinations of assumptions concerning the future trend of fertility and mortality. The present chapter discusses the results of the "medium" projection, which is considered the most plausible variant.

223. A detailed statement of the assumptions which have been used for the different variants will be issued in a forthcoming United Nations report, which will also present the projections based on all variants. In general, a faster pace of mortality decline has been assumed in the present projections, as compared with those prepared in 1963, based on the actual mortality experience of various developing countries in recent years. The different fertility assumptions used in the four variants mainly reflect differences in the predicted date of onset of fertility decline, the main guidelines being whether an official population policy exists, how long the family planning movement has been in existence, general socio-economic conditions and in a few cases, the rapidity of recent fertility decline.

B. GLOBAL TRENDS, 1960-2000

224. The projections clearly illustrate the demographic implications of the unprecedented growth in world population brought about by reductions in mortality accompanied by little change in the high level of fertility in most of the world's less developed regions. Thus, the total world population, which was increasing at an average annual rate of only about 0.5 per cent throughout the nineteenth century, and 0.8 per cent in the first half of the twentieth century, was found to be suddenly increasing during the decade of the 1950s at the rate of 1.8 per cent per annum, in spite of declining rates of growth in the more developed areas. The rate of growth of the world's population rose still higher during the 1960s, and is currently estimated at about 2.0 per cent annually.

225. According to the medium variant, the total world population may continue to grow at a virtually constant rate of about 2.0 per cent annually until 1985 with a gradual slow-down thereafter. In absolute numbers, it may increase from 2,986 million in 1960 and 3,632 million in 1970 to 4,457 million in 1980, and 6,494 million in 2000 (table 15). The population of the less developed regions is expected to increase during this period from 2,010 million in 1960 and 2,542 million in 1970 to 3,247 million in 1980 and 5,040 million in 2000.

226. Should the medium assumptions turn out to be true, the more developed regions, which had a total population of 976 million in 1960, would add about 5 per cent to this total in each quinquennium to 1985. On the other hand, in the less developed regions, which had a total population of about 2,010 million in 1960 as mentioned above, there would be a gain of about 13 per cent in each quinquennium. As a result of these differing growth rates, the population in the less developed regions in the year 2000 is expected to be more than three times the projected figure for the more developed regions in that year (the ratio being 3.5 to 1), while the ratio in 1960 was only a little more than two to one (2.1 to 1).

227. Among the world's major areas, the largest addition to the population during the period under consideration is expected in South Asia, which contains almost one-third of the world's population. India, Pakistan and Indonesia are the main contributors to this total. India's population is expected to increase

⁸⁰ See the following reports: "The past and future growth of world population — a long range view", *Population Bulletin*, No. 1 (United Nations publication, Sales No.: 52.XII.2); "Framework for future population estimates, 1950-1980, by world regions", *Proceedings of the World Population Conference*, 1954, Vol. III (United Nations publication, Sales No.: 55.XIII.8), pp. 283-328; *The Future Growth of World Population* (United Nations publication, Sales No.: 58.XIII.2); *World Population Prospects as Assessed in 1963* (United Nations publication Sales No.: 66.XIII.2).

TABLE 15. ESTIMATES OF TOTAL POPULATION, 1960-2000, IN MAJOR AREAS AND REGIONS OF THE WORLD (MEDIUM VARIANT)

(In millions)

Areas and regions	1960	1970	1980	1990	2000
World total ^a	2,986	3,632	4,457	5,438	6,494
More developed regions ^a Less developed regions ^a	976 2,010	1,090 2,542	1,210 3,247	1,336 4,102	1,454 5,040
East Asia.	785	930	1,095	1,265	1,424
Mainland Region	645 93 47	765 103 61	901 116 78	1,043 125 97	1,176 133 115
South Asia	865	1,126	1,486	1,912	2,354
Middle South Asia	588 219 58	762 287 77	1,001 380 104	1,280 492 140	1,565 608 181
Europe	425	462	497	533	568
Western Europe	135 118 97 76	149 128 104 81	158 140 112 86	169 152 120 93	179 163 127 99
Soviet Union	214	243	271	302	330
Africa	270	344	457	616	818
Western Africa	80 77 29 65 18	101 98 36 87 23	133 129 46 119 29	180 174 60 163 38	240 233 80 214 50
Northern America	199	228	261	299	333
Latin America	213	283	377	500	652
Tropical South America Middle American Mainland Temperate South America Caribbean	112 48 33 21	151 67 39 26	204 95 47 32	272 132 55 40	358 180 63 50
Oceania	15.8	19.4	24.0	29.6	35.2
Australia and New Zealand Melanesia	12.7 2.2 0.9	15.4 2.8 1.2	18.8 3.6 1.7	22.7 4.7 2.2	26.2 6.1 2.9

• Totals for the world, more developed and less developed regions have been adjusted for discrepancies between regional assumptions of immigration and emigration.

from 487 million in 1965 to 555 million in 1970, 633 million in 1975 and 717 million in 1980, reaching 808 million in 1985. In the same years, Pakistan's population is expected to total 116, 137, 162, 191 and 224 million, respectively. The corresponding figures for Indonesia are 105, 121, 140, 161 and 184 million.

228. The next major area of importance in population growth is East Asia, where although the pace of growth is expected to be moderate, the absolute increase will be very large. The bulk of the increment in this area's population is due to the expected growth of mainland China's population, which is projected to increase from 695 million in 1965 to 760 million in 1970, 826 million in 1975, 894 million in 1980 and 965 million in 1985. Sizable increases in total population are also expected in Latin America — from 246 million in 1965 to 435 million in 1985 — and in Africa — from 303 million to 530 million during the same period.

229. The decade of the 1970s may show a higher rate of world population growth than has ever been experienced in the history of man, and one higher than is likely to be encountered again in the future. According to the medium projections, this growth rate will approximate 2.0 to 2.1 per cent annually during the decade (table 16). It will be 1.0 to 1.1 per cent annually in the more developed regions, but 2.4 to 2.5 per cent in the less developed regions. As shown in table 16, little change in the annual rate of growth in either of these two major regions of the world is anticipated during the projection period.

	1905-1970	1970-1975	1975-1980	1980-1985	
further druce in a second second					
World total	2.0	2.0	2.1	2.0	
More developed regions	1.0	1.0	1.1	1.1	
Less developed regions	2.4	2.5	2,4	2.4	
East Asia	1.8	1.7	1.6	1.5	
Mainland Region	1.8	1.7	1.6	1.5	
Japan	1.1	1.2	1.1	0.8	
Other East Asia	2.5	2.4	2.4	2.4	
South Asia	2.8	2.8	2.7	2.6	
Middle South Asia	2.7	2.8	2.7	2.5	
South-East Asia	2.8	2.9	2.8	2.7	
South-West Asia	2.9	3.0	3.1	3.1	
Europe	0.8	0.7	0.7	0.7	
Western Europe	0.8	0.6	0.6	0.6	
Southern Europe	0.9	0.9	0.9	0.8	
Eastern Europe	0.8	0.8	0.8	0.7	
Northern Europe	0.6	0.6	0.7	0.7	
Soviet Union	1.0	1.0	1.1	1.2	
Africa	2,6	2.8	2.9	3.0	
Western Africa	2.5	2.7	2.8	3.0	
Eastern Africa	2.5	2.7	2.8	3.0	
Middle Africa	2.1	2.4	2.5	2.7	
Northern Africa	3.0	3.2	3.3	3.2	
Southern Africa	2.3	2.5	2.6	2.7	
Northern America	1.2	1.3	1.4	1.5	
Latin America	2.8	2.9	2.9	2.8	
Tropical South America	3.0	3.0	3.0	3.0	
Middle America (mainland).	3.4	3.4	3.4	3.4	
Temperate South America	1.8	1.7	1.7	1.6	
Caribbean	2.2	2.2	2.2	2.2	
Oceania	2.0	2.1	2.2	2.2	
Australia and New Zealand	1.9	1.9	2.1	2.0	
Melanesia	2.4	2.6	2.6	2.8	
	2.1	2.1	2.0	2.1	

TABLE 16. ANNUAL RATES OF POPULATION GROWTH (PERCENTAGE), 1965-1985, IN MAJOR AREAS AND REGIONS OF THE WORLD (MEDIUM VARIANT)

230. Among the major areas of the world, rates of growth are currently highest in Latin America and South Asia. Latin America is expected to maintain its very high rate of 2.8 to 2.9 per cent annually, which results from its relatively low mortality compared to other developing areas. In South Asia, where current high growth rates are mainly a reflection of high fertility levels, a slight decrease is expected, from 2.8 per cent in 1965-1970 to 2.6 per cent in 1980-1985, as the anticipated fertility decline in this region begins to outpace the decline in mortality. Due mainly to the influence of the low level of fertility in Japan and the estimated moderate level in mainland China, East Asia had the lowest growth rate of the less developed regions in 1965-1970 - 1.8 per cent, and this rate may decrease to 1.5 per cent by 1980-1985 because of faster anticipated declines in fertility than in mortality. In contrast with the expected pattern of constant or declining

growth rates in the other less developed regions, Africa is expected to show a rising growth rate trend. The annual population growth rate in this region, which was estimated at 2.6 per cent in 1965-1970, may rise to about 3.0 per cent by 1985, at which time the rate would be one of the highest in the world.

231. In the major areas of the more developed regions of the world, annual population growth rates in 1965-1970 ranged from a low of 0.8 per cent in Europe to 2.0 per cent in Oceania, the latter rate being influenced by immigration into Australia and New Zealand, as well as by high fertility among the populations making up the remainder of this region. According to national projections for the more developed countries, rates of population growth are shown to rise somewhat during the projection period in Northern America, the Soviet Union, and in Australia and New Zealand. In Europe, on the other hand, the current rate is expected to decline

- 47 ----

slightly. The slight increases foreseen in the former areas will result for the most part from changes in population age structure, as the only assumed rise in fertility is that for the Soviet Union.

C. TRENDS IN FERTILITY AND MORTALITY

232. Table 17 shows the vital rates implied in the medium projections for the world and its principal regions. So far as the more developed regions are concerned, little change is foreseen in either the crude birth rate or the crude death rate, the two rates remaining near 19 and 9 per 1,000, respectively. The slight increase in the implied birth rate from 18.6 in 1965-1970 to 19.5 in 1980-1985 is mainly due to changes in age structure favourable to higher crude birth rates.

The slight increase shown in the crude death rate from 9.1 to 9.4 per 1,000 — is entirely due to the continued aging of the population.

233. Except for Eastern Europe, where a slight further drop in gross reproduction rates was foreseen (table 18), fertility was expected to remain constant in the other regions of Europe throughout the projection period. The rise of one point in the crude birth rate of Northern Europe reflects changes likely to occur in the age structure of the population, rather than any expected increase in fertility. Increases of 2 to 3 points per 1,000 in crude birth rates appear in the projections for Northern America, the Soviet Union, and Australia and New Zealand, but with the exception of the Soviet Union, where national projections are based on an assumed small increase in the gross reproduction rate, these trends arise from the changing age structure.

 TABLE 17. VITAL RATES IN MAJOR AREAS AND REGIONS OF THE WORLD, 1965-1985 (MEDIUM VARIANT)

 (Per 1,000 population)

,,,,,,,,		Crude b	oirth rate			Crude d	eath rate	
Areas and regions	1965-1970	1970-1975	1975-1980	1980-1985	1965-1970	1970-1975	1975-1980	1980-1985
World total	33.8	33.2	32.1	30.9	14.0	12.8	11.6	10.5
More developed regions	18.6	18.9	19.5	19.5	9.1	9.2	9.3	9.4
Less developed regions	40.6	39.0	37.0	34.9	16.1	14.3	12.5	10.9
East Asia	31.5	29.1	27.0	25.1	14.0	12.3	11.0	10.0
Mainland Region	33.1	30.2	27.8	25.9	15.3	13.4	11.9	10.6
Japan	18.0	18.6	18.1	15.9	7.0	6.6	6.8	7.5
Other East Asia	34.7	32.5	31.4	30.1	9.7	8.4	7.4	6.6
South Asia	44.3	42.9	40.0	36.9	16.8	14.8	12.7	10.9
Middle South Asia	44.4	42.9	39.8	36.6	17.2	15.1	13.1	11.2
South-East Asia	44.2	42.6	39.9	36.9	16.1	14.1	12.1	10.4
South-West Asia	43.6	43.0	41.7	39.9	15.6	13.8	12.0	10.4
Europe	18.0	17.9	17.9	17.9	10.2	10.3	10.4	10.6
Western Europe	17.5	17.1	17.1	17.4	11.0	11.1	11.2	11.3
Southern Europe	19.4	19.1	18.9	18.9	9.3	9.3	9.4	9.8
Eastern Europe	17.3	17.4	17.4	16.8	9.5	9.6	9.8	10.2
Northern Europe	17.6	18.0	18.3	18.6	11.1	11.1	11.2	11.0
Soviet Union	17.9	18.5	19.8	20.4	7.7	8.0	8.3	8.7
Africa	46.8	46.6	46.1	45.2	21.3	19.2	17.2	15.4
Western Africa	48.8	48.7	48.4	47.9	24.3	22.1	20.2	18.3
Eastern Africa	46.6	46.4	46.0	45.5	21.8	19.8	17.9	16.1
Middle Africa	45.3	45.8	45.3	45.7	24.3	22.2	20.2	18.4
Northern Africa	46.9	46.5	45.4	42.9	16.9	14.8	12.9	10.9
Southern Africa	40.7	40.4	40.1	39.7	17.4	15.8	14.3	13.0
Northern America	19.3	20.3	21.7	22.1	9.4	9.5	9.4	9.2
Latin America	38.4	37.6	36.6	35.5	10.0	8.9	7.9	7.0
Tropical South America	39.8	38.9	37.8	36.3	10.0	8.8	7.7	6.8
Middle American Mainland	43.7	42.7	41.4	40.2	10.1	8.7	7.6	6.6
Temperate South America	26.3	25.5	24.8	24.1	9.1	8.8	8.5	8.3
Caribbean	35.0	33.8	33.0	32.3	10.9	9.9	9.1	8.5
Oceania	24.5	25.6	25.9	26.3	10.0	9.3	8.9	8.5
Australia and New Zealand	20.2	21.7	22.5	22.6	8.7	8.3	8.2	8.1
Melanesia	41.7	41.4	39.6	40.1	17.6	15.7	13.8	12.2
Polynesia and Micronesia	39.7	38.0	35.4	36.4	8.8	7.5	6.4	5.8

- 48 -

Although life expectation at birth in the Soviet Union is expected to rise from its present level of about 70 years to 72 years by 1980-1985, the increasing proportion of older persons in the population may bring the crude death rate up one point — from 8 to 9 per 1,000.

234. Tables 17 and 18 show that substantial increases in life expectancy and declines in the crude death rate are foreseen in all the less developed regions. On an average in these regions, a gain of 8 years is expected during the projection period for life expectation at birth (from 50 to 58 years), while the crude death rate may decline from 16 to 11 per 1,000. All major areas are expected to share in these gains, although the pace of improvement is expected to be somewhat slower in Latin America, where mortality was already at a relatively low level in the late 1960s. In that region, life expectancy at birth, which is estimated to have reached 60 years in the late 1960s, was expected to advance to about 66.5 years by 1980-1985. The largest gains in life expectancy were expected to be registered in South Asia and East Asia, where mortality levels are moderately high at present, and in Africa, where current levels of mortality are the highest. In South Asia, life expectancy at birth may rise from 49 to 58 years during the projection period, in East Asia from 52 to 61 years, and in Africa from 43 to 51 years. Thus, according to these assumptions, only by the 1980s would Africa attain the mortality level which now exists in Asia.

235. Significant differences in probable fertility trends are also apparent among the major areas constituting the less developed regions. On the one hand, fertility — as measured by the gross reproduction rate — is likely to remain relatively unchanged in the African region as a whole, as probable small declines

Table 18. Expectations of life at birth (both sexes) and gross reproduction rates, 1965-1985, in major areas and regions of the world (medium variant)

	E.	xpectation of li	fe at birth (yea	rs)	115 2020	Gross reproduction rate					
Areas and regions	1965-1970	1970-1975	1975-1980	1980-1985	1965-1970	1970-1975	1975-1980	1980-1985			
World total	53	56	58	60	2.3	2.2	2.1	2.0			
More developed regions Less developed regions	70 50	71 52	72 55	72 58	1.3 2.7	1.3 2.6	1.3 2.5	1.3 2.3			
East Asia	52	55	58	61	2.0	1.8	1.7	1.5			
Mainland Region Japan	50 71 60	53 73 63	56 74 65	59 74 68	2.1 1.0 2.5	1.9 1.0 2.3	1.7 1.1 2.1	1.6 1.1 1.9			
South Asia	49	52	55	58	3.0	3.0	2.8	2.5			
Middle South Asia	48 50 51	51 53 54	54 56 57	57 59 60	3.0 3.0 3.1	3.0 3.0 3.1	2.7 2.8 3.0	2.5 2.6 2.8			
Europe	71	72	72	73	1.3	1.3	1.2	1.2			
Western Europe	72 70 71 72	72 71 72 73	73 72 73 73	73 72 73 74	1.3 1.3 1.2 1.3	1.3 1.3 1.1 1.3	1.3 1.3 1.1 1.3	1.3 1.3 1.1 1.3			
Soviet Union	70	71	72	72	1.2	1.2	1.3	1.3			
Africa	43	46	49	51	3.1	3.1	3.1	3.1			
Western Africa.Eastern Africa.Middle Africa.Northern Africa.Southern Africa.	39 42 39 50 48	42 45 42 53 50	44 47 44 56 53	47 50 47 59 55	3.2 3.1 2.9 3.2 2.7	3.2 3.1 2.9 3.2 2.7	3.2 3.1 2.9 3.2 2.8	3.2 3.1 3.0 3.0 2.8			
Northern America	70	71	71	71	1.4	1.3	1.3	1.3			
Latin America	60	62	65	67	2.7	2.6	2.5	2.4			
Tropical South America Middle American Mainland Temperate South America Caribbean	60 60 65 58	62 63 66 60	64 65 68 62	67 67 69 64	2.8 3.1 1.8 2.4	2.7 3.1 1.7 2.3	2.6 2.9 1.6 2.2	2.4 2.8 1.6 2.1			
Oceania	65	66	68	69	1.7	1.7	1.7	1.7			
Australia and New Zealand Melanesia	72 47 61	72 50 64	72 53 66	73 56 68	1.4 2.9 2.9	1.4 2.9 2.6	1.4 2.8 2.4	1.4 2.8 2.4			

in Northern Africa may be offset by opposing trends in parts of Middle Africa, where it is believed that improvements in public health may cause a rise in fertility. Fertility declines have been assumed for only a few countries in sub-Saharan Africa, which have adopted policies for population control. In contrast with the stability shown in the projected gross reproduction rates (table 18) the crude birth rate for Africa is shown to decline from 47 per 1,000 in 1965-1970 to 45 per 1,000 in 1980-1985 (table 17), but this trend results from changes in age structure associated with declines in mortality.

236. In Latin America a moderate decline in fertility is foreseen in the projections, bringing the gross reproduction rate for the region as a whole down from 2.7 to 2.4. The largest drop was expected in Tropical South America, while a smaller decline is likely in Temperate South America, where fertility is already rather low. In contrast to the moderate fertility declines assumed for Latin America, fairly sizable decreases are foreseen for South Asia and East Asia. In the former, the gross reproduction rate is assumed to fall from 3.0 at present to 2.5 in 1980-1985, and in the latter, from 2.2 to 1.7. The existence of family planning programmes in the largest countries and the fact that fertility decline has already begun in certain smaller countries in these regions, have been considerations leading to the assumption of more rapid fertility decline.

As shown in table 17, corresponding declines in the crude birth rate could be expected to accompany such changes in the gross reproduction rate.

237. The anticipated virtual equality of the declines of the death rate (from 16 per 1,000 in 1965-1970 to 11 per 1,000 in 1980-1985) and the birth rate (from 41 per 1,000 in 1965-1970 to 35 per 1,000 in 1980-1985) in the less developed regions, would maintain a nearly constant rate of population growth of 2.4 to 2.5 per cent per annum throughout the period.

D. TRENDS IN AGE STRUCTURE AND FUNCTIONAL GROUPS

238. Not only changes in total population size, but also changes in population age structure have important implications for the planning of economic and social development. The striking contrast between the population age structure in the more developed and less developed regions is seen in table 19. Whereas children under 15 years of age constitute 28 per cent of the total population in more developed regions, they make up 42 per cent of the total in the less developed parts of the world. The more industrialized countries have an economic advantage over the less developed countries in that 63 per cent of their population is of working age, while the comparable proportion for the

Table 19. Percentage age distribution in major areas of the world, 1965 and 1985 (medium variant)

(In years)

		1965		1985			
Major area	0-14	15-64	65 and over	0-14	15-64	65 and over	
World total	37.4	57.6	5.0	36.3	58.2	5.5	
More developed regions	28.1	63.0	8.9	26.2	63.4	10.4	
Less developed regions	41.6	55.1	3.3	39.8	56.4	3.8	
East Asia	36.9	59.0	4.1	31.7	63.0	5.3	
South Asia	43.0	54.0	3.0	42.0	54.6	3.4	
Europe	25.4	64.1	10.5	24.9	63.3	11.8	
USSR	30.5	62.1	7.4	26.3	64.3	9.4	
Africa	43.5	53.7	2.8	45.0	52.0	3.0	
Northern America	31.0	59.8	9.2	28.6	61.6	9.8	
Latin America.	42.5	53.9	3.6	41.4	54.5	4.1	
Oceania	32.8	59.9	7.3	32.4	60.1	7.5	

less developed countries is only 55 per cent. Also distinctly different is the proportion of elderly persons (65 years of age and over) in the population — 9 per cent in the more developed countries and only 3 per cent in the less developed countries.

239. According to the medium projections, not very much change is expected to take place in the age structure of either major group of regions. In the less developed group, the percentage of children may decline slightly — from 42 to 40 per cent, with slight increases in each of the other broad age groups. Whereas assumed declines in fertility cause the proportion of children to decrease, falling mortality, which has its greatest

effect at the young ages, tends to partially offset this trend.

240. Africa, which has the highest proportion of children and the lowest proportion in the working ages at present, is the only major developing area where the projected trend of structural change in population is unfavourable — in the sense that the proportion of children is likely to increase (from about 43.5 per cent at the beginning of the period to 45 at the end) and the proportion of the economically active population is likely to decrease (from 54 to 52). The largest structural change is predicted for East Asia, where the proportion of children in the population will decline from 37 to

— 50 —

32 per cent, according to the projections. South Asia, despite a substantial decline in fertility, shows only a small drop in the proportion of children in the population — from 43 to 42 per cent.

241. In the more developed regions, the percentage of children is expected to decrease further between 1965 and 1985 — from 28 to 26 per cent, while the proportion in the ages of economic activity may remain virtually constant at about 63 per cent. On the other hand, the aging of the population, which is a main demographic problem in these regions, is expected to continue, with the percentage in the age group 65 years and above rising from 8.9 in 1965 to 10.4 in 1985. Aging of the population is most conspicuous in Europe, where the percentages aged 65 years and over are 10.5 in 1965 and 11.8 in 1965.

242. The anticipated future changes in the numbers in various functional age groups that are of particular relevance for development planning are shown in tables 20 and 21. The importance of demographic factors in planning is evident from the fact that both the size and the growth of these functional groups are determined by the previous sex-age structure of the population and by fertility, mortality and migration experience. Some of the implications of the growth of these functional groups for development planning during the decade of the 1970s are discussed below.

243. Most noteworthy, perhaps, is the growth anticipated in the working age population, with its important implications for employment and capital requirements. In the less developed regions, this stratum is expected to grow at a slightly higher rate than that of total population, namely at 2.6 per cent annually in 1970-1975 and 2.5 per cent in 1975-1980. This growth will result in an estimated increase of 404 million during the decade, as shown in table 21. On the other hand, in the more developed regions, the rate of growth of the working age contingent is much slower, approximating one per cent annually, and amounting to an 11 per cent increase in size during the decade.

244. Another important trend is the rapid growth of the school-age population, defined as the population 5 to 14 years of age. While this group is shown to increase at about the same rate as the total population in the less developed countries during the 1970s, the tremendous expansion in the absolute numbers in this age group is particularly impressive. Considering the present serious deficiencies in educational facilities in the developing countries, the problems likely to be encountered as a result of adding another 182 million children, or 29 per cent between 1970 and 1980, can easily be envisaged. As table 21 shows, virtually no increase in this group is expected in the more developed regions in that period.

245. The most rapid growth is expected in the projections for the old age group (65 years and over) in the less developed as well as the more developed regions. It should be noted, however, that although the growth of this group is particularly rapid in the less developed regions (3.2 to 3.3. per cent per annum), it constitutes only five per cent of the total population increase expected during the decade. On the other hand, the increase in this age group in the more developed regions is particularly significant, since it constitutes 21 per cent of the total population increase.

TABLE 20.	AVERAGE	ANNUAL	RAT	ES OF	GROW	ТН ВҮ	BROAL	AGE	GROUPS	FOR	THE WO	ORLD'S	MORE
	DEVELOPE	D AND	LESS	DEVEL	OPED	REGIO	NS, 190	55-198	5 (MEDI	UM V	ARIANT)	

(In per cent)

-		1965-1970	1970-1975	1975-1980	1980-198
World total					
All ages		2.0	2.0	2.1	2.0
0-4		2.1	2.0	1.8	1.6
5-14		1.6	1.8	2.2	2.0
15-64		2.0	2.1	2.0	2.2
65 and over		2.6	2.7	2.5	1.8
More developed regions					
All ages		1.0	1.0	1.1	1.1
0-4		- 0.5	1.5	1.7	1.1
5-14		0.4	0.2	0.5	1.6
15-64		1.2	1.1	1.0	1.0
65 and over	• • •	2.5	2.4	1.9	0.4
Less developed regions					
All ages		2.4	2.5	2.4	2.4
0-4		2.8	2.1	1.8	1.7
5-14		2.0	2.4	2.6	2.1
15-64	·	2.5	2.6	2.5	2.7
65 and over		2.8	3.2	3.3	3.3

Group/region	1970	1980 (In millions)	Increase	Percentage increase
Total population				
World	3,632 1,090 2,542	4,457 1,210 3,247	825 120 705	22.7 11.0 27.8
Pre-school group (0-4 years)				
World	508 96 412	612 113 500	104 17 88	20.5 17.0 21.3
School-age group (5-14 years)				
World	836 196 640	1,021 199 822	185 3 182	22.2 1.5 28.5
Working-age group (15-64 years)				
World	2,098 693 1,405	2,577 768 1,809	479 75 404	22.8 10.9 28.7
Old-age group (65 years and over)				
World	189 105 84	246 130 117	57 25 33	30.2 23.7 38.2

TABLE 21. EXPECTED CHANGES IN THE MAIN FUNCTIONAL AGE GROUPS 1970-1980 (MEDIUM VARIANT)

VI. TRENDS AND PROSPECTS IN URBAN AND RURAL POPULATION

A. PROBLEMS OF CONCEPT AND AVAILABLE DATA

246. Generally in the past, the distinction between urban and rural areas may have appeared a rather simple matter. This seemed to be the case so long as the localities in question, towns, cities, and so forth, could be identified by the simultaneous presence of several distinguishing features. Urban areas differed from the rural ones in at least the following respects: administrative, economic, social and physical. They differed administratively because urban areas generally were centres of regional government or were characterized by particular forms of local government; economically because they normally contained a concentration of non-agricultural activities, socially, because they could give rise to styles of life, mentality or culture having no comparable counterpart in rural places, and physically in the confined of residence of comparatively large numbers of people within relatively limited areas. Architectural features, cultural amenities, and various other signposts also enhanced the distinction of the urban places. Furthermore, the outer delimitations were fairly sharp, with little surrounding terrain in which urban and rural characteristics were intertwined.

247. But all these descriptions can vary from one country to another, and within the same country in the course of time. In given localities, the combination, or degree of coincidence, of urban attributes is not always the same. Accordingly, many localities, and the inhabitants therein, can be variously defined as urban or rural, depending on which features are given the greatest emphasis. National definitions of urban populations are now diverse and they continue to change. A survey of recent revisions in definition indicates a certain direction, with some previous criteria losing, and some others gaining in importance, while actual living conditions in each country are also undergoing change.⁸¹

248. Historically, and until recently, administrative definitions have been most prevalent. These will always be important because the trends of population in areas differently administered require observation and study. With economic development, and especially the shift of activities from agriculture to other fields, economic criteria have gained major prominence. For a time, the presence of industries appeared to be the hallmark of urban environments, but more recently this feature has been superseded by a rapid expansion of service activities. No doubt, the distinction of localities according

to the predominant occupations of their inhabitants will also have a continuing importance. If areas are defined only by these descriptions, some of the needs in sociological studies are not well met. But it has been found difficult to include in the national statistical definitions of an urban locality various other measurements so as to distinguish them also from the particular standpoints of social, cultural, political or intellectual urbanism. Furthermore, whether viewed economically or socially, urbanism now undergoes much geographic spread, and area boundaries supposedly delimiting this phenomenon can no longer be traced with much accuracy. It is noteworthy, therefore, that many recent changes in national definitions have come to include physical criteria, and some have become entirely physical. This is to say that localities are then counted as urban if their population resides in compact areas in at least certain numbers and at certain densities, as delimited by the contours of dense residential settlement.

249. Despite the present diversity of national definition of urban population, there is some significance in the fact that each country adheres to those definitions which, in the given case, seem to be most important. In this respect only can it be said that the national statistics of urban and rural population are comparable. Quantities may sometimes have to be re-estimated in international comparisons, depending on the purposes held in view and the considerations (administrative, economic, social or physical) which they may involve.

250. The differences in urban population as variously measured can sometimes be important. As a result of development, urbanistic features become evident in areas otherwise regarded as rural. Because of the migration of agricultural workers ans families, stagnating towns, otherwise still regarded as urban, can also become "reruralized". Overlapping concepts make it difficult to describe and measure all these detailed processes in a clear language, and yet those are some of the concrete manifestations of change occurring in the course of national economic and social development. In this chapter, use is made mostly of national definitions of urban population as reflected in the most recent national statistics, hence these more detailed aspects of urbanization cannot be examined closely.

251. Statistics on urban and rural population exist for nearly every country, and in nearly every national population census the two types of localities are distinguished. Data on urban population are even more extensive than national censuses. In a few countries where it has still been difficult to organize a census with nationwide coverage, it has been possible to enumerate

⁸¹ See Growth of the World's Urban and Rural Population, 1920-2000 (United Nations publication, Sales No.: E.69.XIII.3).

the population in urban areas or the chief cities. Approximate estimates of the population of some cities have also been arrived at by other means, such as a count of houses multiplied by the probable number of occupants per house, by voting registers, school registers, fiscal records, or by other means, though an indication of the method of estimation is then rarely given. These and other sources of data make it possible to estimate at least the approximate urban and rural population in every part of the world, including very rough estimates for some countries where the urban population is probably quite small.

252. As the censuses are taken at various dates, it is necessary for international comparison to interpolate available statistics to the same time-reference, such as the year 1950, 1960, and so forth. Many national sources supply official annual estimates or urban and rural population. These also may be interpolations or extrapolations from census data, but in some instances where the basic statistics are more adequate, they include calculations which comprise the intervening numbers of births, deaths and migrants. Estimates may lose much accuracy where the time period of interpolation or extrapolation from census date is long. Where definitions have changed, and the probable urban population at a previous census must be re-estimated according to the more recent definition, the interpolation is even less assured. In some countries where there has been only one census, or none as yet, it can only be assumed that the level of urbanization

TABLE 22. ESTIMATED TOTAL, URBAN AND RURAL POPULATION OF THE WORLD, MAJOR AREAS AND REGIONS, 1950 AND 1960 (Millions)

		1950			1960	
Region	Total	Urban	Rural	Total	Urban	Rural
World total	2,485	704	1,782	2,982	985	1,997
More developed regions	858	439	419	976	582	394
Less developed regions	1,628	265	1,363	2,025	403	1,602
East Asia	657	105	552	780	179	601
Mainland Region	536	64	472	640	103	537
Japan ^a	83	31	52	93	59	34
Other East Asia	38	10	28	47	17	30
South Asia	698	111	587	865	154	711
Middle South Asia	481	75	406	588	99	489
South-East Asia	173	26	147	219	39	180
South-West Asia	44	10	34	58	17	41
	392	207	185	425	246	179
Western Europe	122	76	46	135	91	44
Southern Europe	109	43	66	118	53	65
Eastern Europe	89	38	51	97	47	50
Northern Europe	72	51	21	76	55	21
Soviet Union	180	71	109	214	106	108
Africa	217	30	187	270	48	222
Western Africa	64	7	57	79	12	67
Eastern Africa	62	3	59	77	6	71
Middle Africa	25	2	23	29	3	26
Northern Africa	51	13	38	65	20	45
Southern Africa	14	5	9	18	8	10
Northern America	166	106	60	199	138	61
Latin America	162	66	96	213	103	110
Tropical South America	84	30	54	112	51	61
Middle American Mainland	36	14	22	49	22	27
Temperate South America	27	16	11	33	23	10
Caribbean	17	6	11	21	8	13
Oceania	12.5	7.7	4.8	15.6	10.2	5.4
Australia and New Zealand	10.1	7.6	2.5	12.6	10.1	2.5
Melanesia	1.7	0.0	1.7	2.1	0.0	2.1
Polynesia and Micronesia	0.7	0.1	0.6	0.9	0.1	0.8

* Territorial reorganization renders Japanese figures for 1950 and 1960 not comparable.

may have been rising at rates similar to those found in some other countries. But these are usually countries in which the urban population was probably not large. One major exception is the mainland of China where there has been a series of official estimates of urban and rural population from 1949 to 1956, but no such statistics since then. Because of its large size, any error in the estimate of China's urban population for a more recent date can be rather considerable.

253. Because of these difficulties of estimation, the urbanization trend in the more limited period from 1960 to 1965 cannot now be assessed with much assurance in many parts of the world. Estimates can, of course, be made, but often they are only a projection whose pos-

sible accuracy remains to be verified on the occasion of the next national census. Pending the availability of new population census data after 1970, therefore, estimates on recent trends of urban and rural population in many parts of the world are preferably confined to the period from 1950 to 1960.

B. GLOBAL TRENDS, 1950-1960

254. As shown in table 22, the world's urban population can be estimated as about 700 million in 1950 and nearly 1,000 million in 1960, and it has increased at an average annual rate of about 3.4 per cent per year

TABLE 23. ESTIMATED LEVELS OF URBANIZATION (PERCENTAGE OF TOTAL POPULATION IN URBAN AREAS), 1950 AND 1960, AND ESTIMATED ANNUAL RATES OF INCREASE IN URBAN, AND RURAL POPULATION DURING 1950-1960

Areas	Percent	age urban	Average annual increase (per cent)		
	1950	1960	Urban	Rural	
World total	. 28	33	3.4	1.1	
More developed regions	51	60	2.0	-06	
Less developed regions	16	20	4.3	1.6	
East Asia	. 16	23	5.5	0.9	
Mainland Region	12	16	5.0	13	
Japan ^a	38	63	6.6	- 40	
Other East Asia	. 26	36	5.4	0.6	
South Asia	. 16	18	3.3	1.9	
Middle South Asia	. 16	17	2.8	1.9	
South East Asia	. 15	18	4.1	2.0	
South West Asia	. 22	29	5.4	1.9	
Еигоре	. 53	58	1.7	- 0.3	
Western Europe	. 62	67	1.8	- 0.6	
Southern Europe	. 39	45	2.2	- 0.2	
Eastern Europe	. 43	49	2.2	- 0.2	
Northern Europe	. 71	73	0.8	- 0.4	
oviet Union	. 40	49	4.1	- 0.1	
<i>Africa</i>	14	18	4.7	1.7	
Western Africa	. 11	15	5.2	1.7	
Eastern Africa	5	7	5.3	1.9	
Middle Africa	. 7	12	7.1	1.2	
Northern Africa	. 25	30	4.4	1.7	
Southern Africa	. 38	42	3.4	1.7	
Northern America	. 64	70	2.7	0.0	
Latin America	. 41	48	4.6	1.3	
Tropical South America	. 36	46	5.4	1.3	
Middle American Mainland	. 39	45	4.7	2.0	
Temperate South America	. 61	69	3.4	- 0.4	
Caribbean	. 33	37	3.2	1.4	
Dceania	. 62	66	2.9	1.2	
Australia and New Zealand	. 76	80	2.9	0.3	
Melanesia	. 2	2	5.2	2.0	
Polynesia and Micronesia	. 13	15	4.7	2.5	

^a Territorial reorganization renders Japanese figures for 1950 and 1960 not comparable.

(see table 23). Increases in the world rural population, from about 1,800 million in 1950 to about 2,000 million in 1960, occurred at an average of about 1.1 per cent per year.

255. A great difference between the world's more developed and less developed regions⁸² should be noted, however. Estimated to have grown from 439 million in 1950 to 582 million in 1960, the urban population of the more developed regions had an average annual increment of 2.9 per cent. In the less developed regions, where it totalled 265 million and 403 million at the two dates, the urban population grew at the average rate of 4.3 per cent. Rural population is estimated to have decreased in the more developed regions, from 419 million to 394 million. In the less developed regions, however, with an estimated 1,363 million in 1950, and 1,602 million in 1960, the rural population grew by an annual average of 1.6 per cent. The increasing weight of the urban component in the total population can be appreciated by comparing the percentage levels, also shown in table 23.

256. Looked at in another way, the world population is estimated to have increased by 497 million in ten years. Of the total, there was an increase of 143 million in the urban population of more developed regions, an increase of 138 million in the urban population of less developed regions, a decrease of 25 million in the rural population of more developed regions, and an increase by 239 million in the rural population of less developed regions. Of the four figures concerning absolute change, the last mentioned is the largest, whereas about equal numbers were added to urban populations in either set of regions.

257. The different sizes and growth rates of populations have other effects in changing the social picture of the world. Thus, in 1950 the less developed regions still comprised only 38 per cent of the world's urban population, but in 1960 they contained 41 per cent. Only 24 per cent of the world's rural population was in more developed regions in 1950, and only 20 per cent in 1960. In the more developed regions, the percentage of the total population which inhabited urban localities rose from 51 per cent in 1950 to 60 per cent in 1960. In the less developed regions, meanwhile, it rose from 16 to 20 per cent.

258. Differences can be noted, however, among particular regions in each of the two groups (see table 23). In 1960, for instance, the level of urbanization was most advanced in Australia and New Zealand (80 per cent of total population), followed by Northern Europe, Northern America, Temperate South America, Western Europe and Japan (percentages from 63 to 73). In none of the more developed regions was the percentage below 49. In the less developed regions, Tropical South America, Middle America and Southern Africa were comparatively highly urbanized (percentages from 42

⁸² As in the preceding chapters, the more developed regions comprise Europe, Northern America, the Soviet Union, Japan, Temperate South America, and Australia and New Zealand, and the less developed regions, the rest of the world. to 47). In the large populations of Middle South Asia and Mainland East Asia, the percentages were only 17 and 18. The least urbanized regions were Melanesia, Eastern Africa and Middle Africa.

259. Rates of increase in urban population have also been unequal. The case of Japan is not comparable owing to administrative reorganizations of officially urban terrain namely, municipal, or *shi* areas. Among more developed regions, only in the Soviet Union did the rate of increase exceed 4 per cent, and only in Temperate South America 3 per cent. Rates of the order of 2 per cent per year were more common. In the less developed regions, by contrast, rates of growth in urban population were commonly of the order of 4 or 5 per cent.

260. As for the rates of increase in rural population, it is noted that these were slightly negative in most of the more developed regions, indicating declines. In some of the less developed regions, by contrast, rural rates of increase of 2 per cent were common — that is rates as high as those in the increase of urban population in the more developed regions.

261. Among less developed regions, the levels and speeds of urbanization were also diverse. Thus, 18 per cent of the population of Africa, and of Asia without Japan, were urban in 1960, as against 45 per cent in the less developed portions of Latin America. The average for Africa is somewhat deceptive, as the urbanization level was only 11 per cent in Tropical Africa,⁸³ whereas it was 30 per cent in Northern, and 42 per cent in Southern Africa, the latter percentage being comparable with Latin America, the Soviet Union, and Eastern and Southern Europe. Among Asian regions (other than Japan), the urbanization level was comparatively high in "Other East Asia" (mainly Korea and China (Taiwan)), where it is estimated at 36 per cent, and in South-West Asia where apparently it was 29 per cent.

262. In each of the three less developed major areas, namely Africa, Asia, and Latin America, excepting Japan and Temperate South America, the urban population grew between 1950 and 1960 at average annual rates of between 4 and 5 per cent, or even faster. Among more developed regions, such a high rate could recently be observed only in the Soviet Union and in Japan. In some particular regions or countries, the rates were even higher. Very high rates of urban growth, sometimes on the order of 7 or 8 per cent per year, have been estimated for some African countries where, in comparison with an initially very small urban population, the relative increases during the 1950s were especially rapid.

263. For the sake of a brief comparative overview, the urbanization levels and rates of urban and rural population growth estimated for particular regions are presented below in order of magnitude. It should be remembered, however, that for various statistical reasons, not all the figures are strictly comparable.

- 56 -

⁸³ Western, Eastern and Middle Africa combined.

World r	egions	according	to	percentage	of	population	urban	in	1960	
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More developed regions	Less developed regions				
Australia and New Zealand 80	Tropical South America				
Northern Europe	Middle American Mainland 45				
Northern America	Southern Africa				
Temperate South America	Caribbean				
Western Europe 67	Other East Asia				
Japan	Northern Africa				
Soviet Union	South-West Asia				
Eastern Europe	South-East Asia				
Southern Europe	Middle South Asia				
	Mainland East Asia 16				
	Western Africa 15				
	Middle Africa				
	Eastern Africa				
	Other Oceania				

World regions according to annual percentage rate of increase in urban population, 1950-1960

More developed regions	Less developed regions					
	Middle Africa 71					
Japan	Middle Africa					
Soviet Union 4.1	Other East Asia					
Temperate South America 3.4	South-West Asia 5.4					
Australia and New Zealand 2.9	Tropical South America 5.4					
Southern Europe 2.2	Eastern Africa 5.3					
Eastern Europe 2.2	Western Africa 5.2					
Northern America 2.1	Mainland East Asia 5.0					
Western Europe 1.8	Other Oceania 4.8					
Northern Europe 0.8 b	Middle American Mainland 4.7					
	Northern Africa 4.4					
	South-East Asia 4.1					
	Southern Africa 3.4					
	Caribbean 3.2					
	Middle South Asia 2.8					

World regions according to annual percentage rate of increase in rural, population, 1950-1960

More developed regions	Less developed regions					
Australia and New Zealand 0.3	Other Oceania 2.2					
Northern America 0.0	South-East Asia 2.0					
Soviet Union	Middle American Mainland 2.0					
Eastern Europe -0.2	Eastern Africa 1.9					
Southern Europe $\dots \dots \dots$	South-West Asia 1.9					
Temperate South America 0.4	Middle South Asia 1.9 ^d					
Northern Europe $\dots \dots \dots$	Western Africa 1.7					
Western Europe $\ldots \ldots \ldots$	Southern Africa 1.7					
Japan	Northern Africa 1.7					
	Caribbean 1.4					
	Tropical South America 1.3					
	Mainland East Asia 1.3					
	Other East Asia 0.6					

* Affected by administrative reorganizations of urban areas. In comparable terms, the growth of cities was not so rapid.

^b Affected by increasing residence in suburban areas not included in administratively urban places. Taken as agglomerations, urban localities probably grew more rapidly.

^c Affected by a more restrictive definition of urban localities in the 1961 census of India, as compared with the 1951 census. Actual increase in identical urban localities was somewhat more rapid.

^d Estimates affected by changing significance in the definition of urban areas. Estimated more comparably, the rural population of Northern Europe had a larger decrease, that of Japan a smaller decrease, and that of Middle South Asia a slightly smaller rate of increase.

264. Despite the recent emergence of ever more numerous large cities, and rapid population growth in nearly all the less developed regions, increases in their rural populations have remained very considerable. Population growth in general has accelerated greatly, and the majority of the countries' inhabitants are still rural. Consequently, even the fast growth of towns and cities has not absorbed the major part of the natural population increases in the rural areas. Between 1950 and 1960 it can be estimated that the rural population of East Asia (without Japan) has grown at an annual rate of 1.3 per cent, that of Latin America (without Temperate South America) at 1.4 per cent, that of Africa at 1.6 per cent, and that of South Asia at 1.8 per cent. Because of the sizes in absolute numbers, these rates of increase have produced large additional gains. Among less-developed regions, the 1950-1960 gain in rural population may have amounted to 15 million in Latin America, 35 million in Africa, 50 million in East Asia, and 125 million in South Asia. These figures are not of assured accuracy, but their general magnitude should not be doubted.

C. SIZE CLASS OF LOCALITY

265. Living conditions can vary greatly not only between areas designated as either urban or rural, but also between big cities and small towns, and between the more sizable villages and smaller or dispersed rural settlements. Size of place does not by itself determine the economic, social or demographic conditions of each locality because towns, villages or cities differently situated also vary in their functions (for example, industrial, commercial, food-processing, transport, administrative, educational etc.), in the levels of economic and social organization at which these are carried out, and in their interdependence with the combined settlement pattern and its features of geography, natural resources, transport facilities, and so forth. Physical appearance and cultural conditions can also be diverse. While the influence of a great many conditioning factors must be borne in mind, the composition of urban and rural populations according to sizes of settlements provides important indications for a variety of needs and opportunities in economic and social investments.

266. In an attempt to estimate urban and rural populations independently of the varied national definitions for such localities, the United Nations has compiled certain calculations bearing on the population of localities with at least 20,000 inhabitants. These were estimated, wherever possible, within the contours of dense residence, hence the population of such localities has been referred to as the agglomerated population.⁸⁴ The remaining population, outside such localities, was then referred to as the rural and small town population,

considering that many localities smaller than 20,000 inhabitants can also have predominantly urban features. It was then possible to classify the agglomerated populations according to size groups of towns and cities, such as the "city" population (localities with at least 100,000 inhabitants)⁸⁵ "big-city" population (localities with at least 100,000 inhabitants)⁸⁵ "big-city" population (localities with at least 2,500,000 inhabitants), "multimillion city" population (at least 2,500,000 inhabitants), and the two "super-conurbations" of 1960, namely New York and Tokyo, each with more than 12,500,000 inhabitants. It was not possible, on the other hand, to subclassify the rural and small-town population by locality size, though it must be recognized that for many practical purposes this is also an important subject.⁸⁶

267. Measured in these physical terms, the world's agglomerated population (localities of at least 20,000 inhabitants) totalled about 533 million in 1950 and about 760 million in 1960, an increase of 43 per cent in ten years. "City" population (at least 100,000 inhabitants) totalled 363 million in 1950 and 516 million in 1960, an increase bu 42 per cent; "big-city" population (at least 500,000 inhabitants) grew from 227 million to 352 million, that is by 55 per cent; and "multimillion city" population (at least 2,500,000) from 95 million to 142 million, that is by 49 per cent.87 The groups of urban agglomerations considered at the two dates are not identical since in the intervening period additional cities or towns have come to surpass the various size limits. On the whole, in the decade of the 1950s, the "big-city" population (cities of at least 500,000 inhabitants) seems to have increased somewhat faster than that of smaller cities and towns. The growth in the group between 100,000 and 500,000, however, may have been underestimated because of insufficient detailed research.

⁸⁶ On the one hand, agriculture is sometimes carried out with greater efficiency when the farmers live in close proximity to their fields, for example, in individual homesteads, or in small hamlets. On the other hand, many services such as electricity, marketing, repair shops, health, educational facilities etc., can become available to larger numbers of the rural population when they live in more sizable villages or when small towns are numerous.

⁸⁷ Population totals for each class of agglomerations — with the exception of the "multimillion city" designation — include the population total for the next higher size class. By subtraction, it is possible to determine increases in population for agglomerations within particular size ranges. Thus, the population of towns of 20,000-99,999 inhabitants grew from 170 million to 244 million; that of cities of 100,000-499,999 inhabitants from 136 million to 164 million; and that of bigger cities of 500,000-2,499,999 inhabitants from 132 million to 210 million. The estimates lack precision since the boundary definitions, particularly of the big cities, are often rather debatable. A comparison between "rural and small-town" population (localities of fewer than 20,000 inhabitants) with strictly rural population (according to national definitions) also permits an estimation of "small-town" population (localities smaller than 20,000 yet nationally defined as urban). This could have totalled 172 million in 1950, and 239 million in 1960, but differences in boundary definitions of localities make this a rather imprecise estimate. Because of imprecision it cannot be definitely concluded which size class of agglomerations showed the largest increase.

- 58 -

⁸⁴ United Nations, *Growth of the World's Urban and Rural Population*, 1920-2000 (United Nations publication, Sales No.: E.69.XIII.3). Many of the estimates will have to be revised upon the appearance of new census data.

⁸⁵ This nomenclature is arbitrary but was thought useful in the given context. The successive lower size limits (20,000, 100,000, 500,000 etc.) were taken as equal multiples of one another for certain theoretical reasons.

268. Big cities of the world (with at least 500,000 inhabitants) numbered 158 in 1950 and 234 in 1960, and the number of multimillion cities increased from 20 to 26. The agglomerations of New York and Tokyo came each to surpass 12,500,000 shortly before 1960. Urban agglomerations of the last-mentioned size may become more numerous as time progresses. It is noteworthy that an increasing proportion of the urban population is that of big cities, despite the continuing emergence of numerous new urban settlements. The population estimates for the biggest cities are very debatable because the outer demarcations can be determined by varied standards. If delimited comparably with New

York (including north-eastern New Jersey) and Tokyo (including Yokohama), the continuous agglomeration of London, the world's third-largest city, should perhaps be estimated at about 11 million inhabitants in 1960.⁸⁸ Other reservations apply also in different instances. These should be borne in mind in viewing the estimates for multimillion cities presented below.

⁸⁸ As a result of planning, the London conurbation is surrounded by a zone called the Green Belt. Recently, growth of population inside the Green Belt has ceased, but the population of agglomerations within and outside the Green Belt continued to increase.

	Popula	ition in		Popula	tion in
Agglomeration	1950 1960 (millions)		Agglomeration	1950 1960 (millions)	
New York ^a	12.3	14.2	Rio de Janeiro	3.0	4.7
Токуо ^ь	8.2	13.5	São Paulo	2.4	4.4
London ^c	8.4	8.2	Bombay	2.7	4.0
Shanghai ^d	5.0	7.5	Philadelphia	2.9	3.7
Paris ^e	6.3	7.1	Detroit	2.8	3.6
Buenos Aires	5.2	6.8	Peking ^d	1.5	3.5
Los Angeles	4.0	6.6	Leningrad	3.0	3.4
Moscow	5.4	6.2	Cairo	2.3	3.3
Chicago	4.9	6.0	Berlin ^g	3.4	3.3
Calcutta	4.5	5.8	Djakarta	1.8	2.8
Osaka	3.1	5.2	Tientsin ^d	1.7	2.8
Ruhrgebiet f	4.1	5.0	Boston ^h	2.5	2.7
Mexico City	3.0	4.8	Hong Kong	1.0	2.6

^a Includes north-eastern New Jersey.

^b Includes Yokohama.

 $^\circ$ i.e. Greater London Conurbation. The Greater London Planning Region increased from 10.2 million in 1950 to 10.5 million in 1960, and the London Metropolitan Region from 11.6 million to 12.4 million.

^d Very rough estimate of agglomerated (i.e. physically "urban") population within municipal limits. ^e i.e. *Agglomération étendue*, not including the *Zone d'attraction*.

 $^{\rm t}$ Industrial conurbation in the Federal Republic of Germany, including Essen and several other immediately adjacent cities.

^g Both East and West Berlin.

h Includes Lawrence-Haverhill and Lowell.

269. The recent trends in the size-class distribution of the urban population differed noticeably between the more developed and the less developed regions. In more developed regions, between 1950 and 1960, the "agglomerated" population rose from 343 million to 450 million; the "city" population from 246 million to 329 million; the "big-city" population from 162 million to 222 million; and the "multimillion city" population from 76 million to 95 million. The increases in the four successive size categories were by 31, 34, 37 and 25 per cent, the relative increase in the largest size group having been, comparatively, moderate.

270. In the less developed regions, during the same time, the "agglomerated" population grew from 190 to 311 million, the "city" population from 117 to 207 million, the "big-city" population from 65 to 131 million, and the "multimillion city" population from 18 to 46 million. Here, the increases in the successive size classes were by 64, 77, 100 and 150 per cent, respectively. As can be seen, the bigger the size class, the faster has been its growth, and this has largely been due to the rapid emergence of more numerous cities of large size in the less developed regions. In more developed regions, "big-cities" numbered 105 in 1950, and 139 in 1960; in less developed regions, they numbered 53, and 95, at the two dates. In more developed regions, "multimillion cities" numbered 15 at both dates, no new cities having surpassed the size limit of 2,500,000 in that interval. Meanwhile in less developed regions the number of "multimillion cities" rose from 5 to 11.

271. From the standpoint of urbanization trends, it appears appropriate to distinguish three groups of world regions, namely Europe (without the Soviet Union), more developed regions other than Europe, and the less developed regions. The threefold distinction appears appropriate because urban development of a modern type is oldest in Europe, and most recent in the less developed regions. At the beginning of this century, nearly one-half of the entire world's urban population was to be found in Europe, and higher

proportions of the world's population in the bigger or the biggest cities. But urban growth, especially that of big cities, was then more rapid in Northern America, the Soviet Union, Japan, Temperate South America, and Oceania, and in these combined regions the urban population of Europe, and especially that of its big cities, was eventually greatly exceeded. In the 1950s, however, even faster growth can be noted in the urban, and big city, populations of less developed regions, now surpassing in their combined size the corresponding population groups in Europe. Urbanization trends, and their tendency towards concentration in big cities also seem to be related to the general rates of population growth, now occurring at the slowest pace in Europe, at an intermediate speed in other more developed regions, and fastest in the less developed regions. However, many other circumstances should also be taken into account in this complex development.

272. Geographical shifts have occurred, for instance, between big city populations situated at the seaboards and those situated inland (see figure 5). Since the times of mercantilism and subsequent periods of colonial or semi-colonial development, world-wide channels of trade caused an especially large growth in the population of seaport cities. While such cities are still growing considerably, however, the 1950s witnessed again a somewhat greater growth in inland cities. Thus, between

1950 and 1960, the population of "big" seaport cities (at least 500,000) in Europe grew from 27 million to 31 million, that is by 14 per cent; and that of "big" inland cities from 43 million to 50 million, which is by 17 per cent. Big seaport cities in other more developed regions grew from 55 million to 79 million, or 42 per cent; and big inland cities from 36 million to 62 million, or 70 per cent. In the less developed regions, there was a population growth in big seaport cities from 36 million to 58 million, that is, by 60 per cent; and in big inland cities from 29 million to 73 million, or 150 per cent. The emergence of more numerous and fast-growing big cities in the inland regions of less developed countries, therefore, can be considered as a rather noteworthy recent observation. It must be admitted that the estimates cannot be very accurate, particularly as they include the highly debatable figures for big cities in China (mainland).

273. Despite the apparent recent inland shifts in big-city populations, the emergence of large continuous regions under an urban dominance leads to contrary observations. Both as regards the eastern seaboard of the United States and the southern seaboard of Japan one now speaks of "megalopolitan belts" characterized by an intense pattern of traffic and communications along their major axes, and an ever greater complexity of co-ordination among highly specialized activities in



Figure 5. Population of inland cities and seaport cities of 500,000 or more inhabitants, 1950-1960

particular centres. The North American and Japanese "megalopolitan belts" have each come to comprise populations of the order of 50 million within land areas of about 150,000 square kilometres. A third region of similar size and with a comparable degree of urban dominance can be distinguished in north-western Europe, comprising Belgium, the Netherlands and Luxembourg, some adjacent areas in France, and a major segment of the Federal Republic of Germany. In the latter instance the internal communications pattern and the size distribution of individual urban units, is somewhat different, but again the proximity to the seaboard can be noted. It is conceivable that "megalopolitan" complexes of great size also are developing in other parts of the world, perhaps in association with such large centres as Buenos Aires, Calcutta, São Paulo or Shanghai if not also elwsehere (for example, the Great Lakes region situated inland in the United States and Canada). Such indications, again, are found more often near seacoasts than inland.

274. Whether these geographical developments are desirable, or preferable to alternative distributions affecting the centres of administrative, cultural, economic, intellectual, and social leadership, cannot be stated without much ambivalence. Benefits or incomes resulting from heavy urban concentrations will vary both with the internal social and economic conditions of each country, and with the opportunities of each country for participation in international trade and other world-wide exchanges. In their concern to avoid the heavy economic and social costs, arising from an excessive concentration of urban populations in the biggest cities, and in their desire to bring about a wider geographical spread and penetration of the benefits of urban developments, the Governments of some countries have adopted various policies of regional planning. In the Soviet Union and on the mainland of China, for instance, the growth of cities has been fostered in certain regions, including some with special natural resources. It is possible that as a result, other cities - including some of the largest - have grown less rapidly than they might have in the absence of such a policy. On a smaller scale, such policies are also in evidence in a number of other countries, for example, in Eastern Europe, Italy, the United Kingdom, and elsewhere. The deliberate location of particular industrial projects also implies such a policy. In some countries, for example in Australia, Brazil, Pakistan and Turkey, a concern for more vigorous internal development has found expression in the transfer of the seat of national Government from a peripheral to a more central location.

275. Apart from these large scale developments, is should also be re-emphasized that the geographic distribution of medium-sized and smaller towns, and the forms of the rural habitat, whether in agglomerations or dispersed, can have important practical implications for internal development purposes. Especially in countries with dense and still rapidly growing rural populations, these features of the settlement pattern can be of immediate importance to a majority of the citizens. The internal transport network is apt to remain sparse

where many small units of settlement are separated by appreciable distance. Improved roads can be maintained more economically only if they connect substantial villages or towns. Schools, hospitals, repair shops, co-operatives, electricity, and a host of other development factors, inaccessible to isolated farmers, might be brought within the comfortable reach of village peasants. In hamlets and homesteads, opportunities for diversified social function and organization are minimal, but these opportunities can be considerable in larger villages. Such considerations can also become vital in the context of rural or agrarian reform, and under various other aspects of development policy. It is unfortunate that the existing great diversity in rural and small town settlement patterns, and the possible trends therein, cannot now be comparably reviewed on an international scale.

D. TENTATIVE PROJECTIONS

276. Experimental projections have been made by the United Nations of the urban and rural populations as variously defined in each country, in conformity with the recent interim revision of total population, discussed in chaper V. These partly supersede projections of urban and rural population published previously.89 The results obtained for regions and major areas are shown in tables 24 to 28. In 1960, world urban population totalled 1,000 million, and by the year 2000 it may exceed 3,000 million, growing threefold in those forty years (see table 24). The wolrd's rural population, about 2,000 million in 1960, may also attain 3,000 million by the end of the century, growing by an additional 1,000 million (see table 25). One-third of the world population was urban in 1960. By the end of the century the number of urbanites may equal or surpass that of rural dwellers.

277. This growth will, however, be very unequal among different areas of the world. Distinguishing first the more developed and less developed regions, we find that the urban population of the more developed regions may double in the forty years from 1960 to 2000, whereas the urban population of less developed regions may in the meantime increase fivefold. The rural population of more developed regions may diminish by more than one-quarter from 394 million in 1960 to 280 million in 2000. The rural population of the less developed regions, however, will still undergo an enormous growth, from 1,603 million to 2,906 million.

278. Among the major areas distinguished, Europe (without the Soviet Union) still had the largest urban population in 1960. By 1980 this may be surpassed by the urban populations of East Asia and South Asia, and by the end of the century possibly also by the urban population of Latin America. Though comparatively small in 1960, the urban population of Africa may come to surpass those of Northern America and the Soviet Union.

61 -

⁸⁹ Using different methods, projections of population in localities greater than 20,000 inhabitants, and in smaller localities, were brought together in *Growth of the World's Urban and Rural Population*, 1920-2000 (United Nations publication, Sales No.: E.69.XIII.3).

279. In 1960, 60 per cent of the population of more developed regions was urban, compared with 20 per cent of the population of the less developed regions. By the end of the century the two respective levels may be about 80 and 40 per cent (table 26).

280. Such changes can come about as a result of diverse growth rates. By the nature of the assumptions made, all growth rates will tend to diminish.

281. The annual rate of growth of the urban population in more developed countries — 2.1 per cent per year during 1960-1970 — may shrink to 1.4 per cent by the close of the century (table 27). In the less developed tegions, the urban population will grow at a rate of 4.6 per cent per year in the 1960s, and by 3.7 per cent in the 1990s. The highest rates of urban growth will be those in Africa, followed by South Asia, Latin America and East Asia.

282. Rural populations will diminish in the more developed regions at accelerating rates — by 0.6 per

cent per year in the 1960s and by 1.2 per cent annually in the 1990s (table 28). In the less developed regions, however, appreciable rates of growth in the large rural population will be maintained, 1.8 per cent annually in the 1960s and 1970s, and 1.1 per cent per year in the 1990s. Rural populations in the less developed regions would indeed be growing at rates similar to those of growth in urban populations in the more developed regions if the assumptions made in the projections were to be borne out.

283. Experience in the projection or urban and rural populations is still very limited, and none of the figures should be accepted as precise predictions. The fact remains that, should rural population grow less, urban population would have to grow even more, or vice versa. The orders of magnitude may perhaps have to be accepted, pending a review once the results of censuses taken around 1970 have become available for a fresh analysis.

TABLE 24. URBAN POPULATION, 1960-2000, IN MAJOR AREAS AND REGIONS OF THE WORLD (Millions)

Region	1960	1970	1980	1990	2000
World total	985	1 352	1 854	2 517	3 329
More developed regions	582	717	864	1.021	1,174
Less developed regions	403	635	990	1,496	2,155
East Asia.	179	266	387	541	722
Mainland Region	103	164	252	371	518
Japan	59	75	93	108	120
Other East Asia	17	27	43	62	83
South Asia	154	238	370	556	793
Middle South Asia	99	150	229	339	476
South-East Asia	39	60	94	140	203
South-West Asia	17	28	47	76	114
Europe	246	292	339	388	438
Western Europe	91	108	122	137	151
Southern Europe	53	65	80	95	111
Eastern Europe	47	57	69	80	92
Northern Europe	55	62	68	76	84
Soviet Union	106	139	174	214	252
Africa	48	77	125	203	320
Western Africa	12	20	34	58	96
Eastern Africa	6	9	16	29	50
Middle Africa	3	6	11	19	33
Northern Africa.	20	30	49	76	113
Southern Africa	8	10	15	21	29
Northern America	138	169	204	245	284
Latin America	103	158	238	350	495
Tropical South America	51	84	131	198	286
Middle American Mainland	22	35	55	84	125
Temperate South America	23	30	38	46	56
Caribbean	7	11	15	21	28
Oceania	10	13	17	21	25
Australia and New Zealand	10	13	16	20	24
Melanesia	0	0	0	0	0
Polynesia and Micronesia	0	0	1	1	1
-					

Region	1960	1970	1980	1990	2000
World total	1 997	2 283	2 614	2 939	3 186
More developed regions	394	374	347	316	280
Less developed regions	1 603	1 910	2 267	2 623	2 906
East Asia.	601	664	708	725	703
Mainland Region	537	601	649	672	658
Japan	34	29	23	18	13
Other East Asia	30	34	35	35	32
South Asia	711	888	1 116	1 355	1 561
Middle South Asia	490	612	772	941	1 089
South-East Asia	180	227	286	350	405
South-West Asia	42	49	57	65	67
<i>Europe</i>	179	170	158	145	131
Western Europe	44	41	36	32	28
Southern Europe	65	63	60	57	52
Eastern Europe	50	47	44	39	35
Northern Europe	20	19	18	17	15
Soviet Union	108	104	97	89	77
Africa	221	268	332	413	498
Western Africa	67	81	99	122	144
Eastern Africa	71	88	112	145	184
Middle Africa	26	30	35	42	48
Northern Africa.	46	56	71	87	101
Southern Africa	11	12	15	18	21
Northern America	60	59	56	54	50
Latin America	110	125	139	150	157
Tropical South America	60	67	72	74	73
Middle American Mainland	27	33	40	48	55
Temperate South America	10	10	9	8	7
Caribbean	13	15	17	20	22
Oceania	5	6	7	9	10
Australia and New Zealand	2	3	3	2	2
Melanesia	2	2	3	4	6
Polynesia and Micronesia	1	1	1	2	2

 TABLE 25. RURAL POPULATION, 1960-2000, IN MAJOR AREAS AND REGIONS OF THE WORLD

 (Millions)

Region	1960	1970	1980	1990	2000
World total	33.0	37.2	41.5	46.1	51.1
More developed regions	59.6	65.7	71.4	76.4	80.7
Less developed regions	20.1	25.0	30.4	36.3	42.6
Less developed regions	20.1	20.0	5011	00.0	1.210
East Asia	22.9	28.6	35.4	42.7	50.7
Mainland Region	16.1	21.4	28.0	35.6	44.1
Japan	63.1	72.4	80.3	86.0	90.4
Other East Asia	35.6	44.7	54.3	63.6	72.1
South Asia	17.8	21.2	24.9	29.1	33.7
Middle South Asia	16.8	19.6	22.0	26.5	30.4
South East Asia	17.8	21.0	22.9	28.9	33.4
South-West Asia	28.7	36.5	45 1	54.0	62.8
South-West Asia	20,7	50.5	40.1	5 1.0	02.0
Europe	57.9	63.2	68.1	72.8	77.0
Western Europe	67.4	72.4	77.0	81.0	84.4
Southern Europe	45.0	51.0	56.9	62.6	68.1
Eastern Europe	48.7	55.0	61.2	67.0	72.3
Northern Europe	73.0	76.3	79.3	82.0	84.4
Soviet Union	49.5	57.1	64.2	70.7	76.5
Africa	17.9	22.2	27.3	33.0	39.2
Western Africa	15.3	20.0	25.7	32.4	39.8
Eastern Africa	7.3	9.7	12.7	16.5	21.2
Middle Africa	11.5	16.5	23.0	31.1	40.7
Northern Africa	29.9	35.2	40.9	46.8	52.9
Southern Africa	41.7	45.7	49.8	53.9	57.9
Northern America	69.6	74.2	78.3	82.0	85.1
Latin America	48.4	55.9	63.2	70.0	75.9
Tropical South America	46.0	55.4	64.6	72.8	79.7
Middle American Mainland	44.8	51.2	57.6	63.7	69.4
Temperate South America	69.3	75.3	80.5	84.8	88.3
Caribbean	36.1	41.0	46.2	51.4	56.5
Oceania	65.5	67.9	69.8	71.0	71.7
Australia and New Zealand	79.9	83.6	86.7	89.3	91.5
Melanesia	2.2	3.0	4.0	5.3	7.0
Polynesia and Micronesia	15.0	17.8	21.1	24.8	28.9

Table 26. Urban percentage in total population, 1960-2000, in major areas and regions of the world

TABLE 27.	AVERAGE ANNUA	L RATES OF	GROWTH	IN U	JRBAN	POPULATION,	1960-2000,	IN MAJOR	AREAS
		AND	REGIONS	OF	THE	WORLD			

(Per cent)

Region	1960-1970	1970-1980	1980-1990	1990-2000
World total	3.2	3.2	3.1	2.8
More developed regions	2.1	1.9	1.7	1.4
Less developed regions	4.6	4.5	4.2	3.7
East Asia	4.1	3.8	3.4	2.9
Mainland Region	4.8	4.4	4.0	3.4
Japan	2.4	2.2	1.5	1.1
Other East Asia	5.1	4.4	3.9	3.0
South Asia	4.4	4.5	4.2	3.6
Middle South Asia	4.3	4.4	4.0	3.5
South-East Asia	4.5	4.5	4.2	3.6
South-West Asia	5.3	5.3	4.9	4.1
Europe	1.7	1.5	1.4	1.2
Western Europe	1.7	1.2	1.2	1.0
Southern Europe	2.2	2.0	1.8	1.6
Eastern Europe	2.0	1.8	1.5	1.4
Northern Europe	1.1	1.0	1.0	1.0
Soviet Union	2.7	2.3	2.1	1.7
Africa	4.7	5.0	5.0	4.7
Western Africa	5.2	5.4	5.4	5.1
Eastern Africa	5.4	5.6	5.8	5.6
Middle Africa	5.7	5.9	6.0	5.6
Northern Africa	4.5	4.8	4.6	4.0
Southern Africa	3.3	3.4	3.5	3.4
Northern America	2.0	1.9	1.8	1.5
Latin America	4.4	4.2	3.9	3.5
Tropical South America	5.0	4.6	4.2	3.7
Middle American Mainland.	4.8	4.7	4.5	4.0
Temperate South America	2.7	2.4	2.1	1.9
Caribbean	3.6	3.4	3.3	3.2
Oceania	2.5	2.5	2.3	1.8
Australia and New Zealand	2.4	2.4	2.2	1.7
Melanesia	5.5	5.6	5.8	5.5
Polynesia and Micronesia	5.0	4.8	4.7	4.0

Table 28. Average annual rates of growth or decline in rural population, 1960-2000, in major areas and regions of the world

(Per cent)

Region	1960-1970	1970-1980	1980-1990	1990-2000
World total	1.4	1.4	1.2	0.8
More developed regions	0.5	- 0.8	-09	-1.2
Less developed regions	1.8	1.7	1.5	1.0
East Asia	1.0	0.7	0.2	- 0.3
Mainland Region	1.1	0.8	0.3	0.2
Japan	- 1.8	- 2.1	-2.8	-3.2
Other East Asia	1.2	0.5	0.0	- 0.9
South Asia	2.2	2.3	2.0	1.4
Middle South Asia	2.3	2.3	2.0	1.5
South-East Asia	2.3	2.4	2.0	1.5
South-West Asia	1.6	1.6	1.2	0.5
Europe	- 0.5	-0.7	0.9	-1.0
Western Europe	- 0.7	-1.2	- 1.3	- 1.4
Southern Europe	-0.2	- 0.4	- 0.6	0.9
Eastern Europe	- 0.6	0.7	1.0	-1.1
Northern Europe	0.6	- 0.7	- 0.7	0.8
Soviet Union	- 0.4	- 0.7	0.9	1,3
<i>Africa</i>	1.9	2.2	2.2	1.9
Western Africa	1.9	2.0	2.1	1.7
Eastern Africa.	2.2	2.4	2.6	2.4
Middle Africa.	1.4	1.6	1.7	1.4
Northern Africa	2.0	2.3	2.1	1.5
Southern Africa	1.6	1.8	1.9	1.7
Northern America	- 0.3	- 0.4	- 0.5	0.8
Latin America	1.3	1.0	0.8	0.5
Tropical South America	1.1	0.7	0.3	0.2
Middle American Mainland.	2.1	2.0	1.8	1.4
Temperate South America	-0.4	0.6	- 0.9	-1.2
Caribbean	1.5	1.3	1.2	1.1
Oceania	1.3	1.5	1.7	1.5
Australia and New Zealand	-0.1	-0.1	- 0.3	- 0.8
Melanesia	2.4	2.5	2.7	2.4
Polynesia and Micronesia.	2.9	2.6	2.6	1.9

VII. POPULATION POLICIES

A. INFLUENCES ON POPULATION GROWTH AND DISTRIBUTION

284. The number of inhabitants within a nation is determined by past conditions and trends of fertility, mortality and international migration. The rate of national population growth reflects changes in the balance of births, deaths and the resettlement of people across national boundaries. Internal migration plays a part in national population growth, in so far as population redistribution influences national levels of fertility and mortality. The redistribution of population between rural and urban areas, and between various other subregions wihtin a country is brought about by internal migration and by subnational differences in birth and death rates. More particularly, population redistribution influences and reflects national variations in the quality of life, in opportunities for social and economic mobility and in the supply and demand for services.

285. All Governments design policies, adopt administrative programmes and enact laws which intentionally or unintentionally, directly or indirectly, influence the components of population growth — fertility, mortality and international migration — as well as the internal redistribution of the nation's inhabitants. However, such measures represent national population policy only when implemented for the purpose of altering the natural course of population movements.

286. In response to the Secretary-General's "Inquiry among Governments on problems resulting from the interaction of economic development and population changes", ⁹⁰ approximately a dozen Governments reported actions taken for the purpose of influencing internal migratory movements, particularly from rural to urban areas, and for the purpose of achieving a more satisfactory distribution of population within the country. The policies were implemented through the location of new industrial establishments, the construction of roads and other transportation facilities, aid to housing construction in particular regions, and the creation of industries in regions in need of development.

287. Most Governments have laws or other measures indicative of a policy regarding immigration and emigration. In the past, a number of countries sought to relieve problems arising from the growth of population by promoting the emigration of their nationals. Others have attempted to relieve manpower shortages through 288. Nearly all social and economic policies implemented on a national scale affect mortality in some way, as the measures are designed to enhance the general well-being and to improve conditions of life among the maximum number of people. Moreover, measures in the field of public health, which are taken specifically for the purpose of enhancing general health standards and improving mortality conditions, are the most common type of population policy, since they are indispensable to survival in the conditions of settlement that characterize communal living.

289. The remaining area in which policies may be applied with the view to moderating the course of population trends is, of course, the sphere of fertility, and it is this component of population growth that an increasing number of Governments are attempting to influence. While in the majority of cases the interest is in lowering fertility levels with the view to decelerating rates of national population growth, Governments of some countries have indicated a preference for higher growth rates through increased or stable fertility. In the first instance, the principal instrument of policy is the national family planning programme. In the second, incentives to large families are the more common instruments of pro-natalist policies, although Governments often apply restrictive measures such as the banning of sale and distribution of contraceptive devices.

290. The unprecedented rates of national population growth that have been a distinguishing feature of the 1950s and 1960s were most phenomenal in the economically and socially disadvantaged regions of the world. Declining mortality and fairly stable, high levels of fertility have characterized population change in the still under-developed areas; the vast emigration possibilities that were available to absorb the surplus population of European countries during the early stages of the demographic transition do not exist for the developing countries today. These decades were also years during which relatively large-scale national and international resources were invested in concerted efforts to aid the economic and social advancement of developing countries. The role of the population factor in frustrating these efforts has been well documented. Sustained high fertility has produced, along with rapid population growth, an unfavourable age structure in which a large

⁹¹ Ibid.

- 67 -

the solicitation of skilled labour from abroad, or to aid economic development through the promotion of selective immigration.⁹¹ In a few countries, immigration policy is based upon political rather than, or in addition to, economic considerations.

⁹⁰ Official Records of the Economic and Social Council, Thirtyseventh Session, Annexes, agenda item 21, document E/3895/ Rev.1.
proportion of the population is in the young, economically unproductive age groups. The need to provide health, educational and housing facilities and food for a relatively large consuming, but non-productive segment of the national population is at the core of the development problem in these regions. In such circumstances, there is little or no choice as to the sectors of the economy to which resources can be allocated, and Governments have little opportunity to accumulate capital for investment in long-term economic growth.

291. In many developing countries, therefore, planning officials and other Government officers have concluded that an alteration of the pace of population increase to a rate more compatible with rapid economic and social development is indispensable to early progress in these fields. Thus, inasmuch as long life is universally valued and lower mortality is the only means of achieving it, and since for regions of rapid population increase avenues of large-scale emigration are closed, the only pertinent demographic variable susceptible of regulation is in the realm of fertility. Recognition of this fact has produced a tendency among some national administrators and scholars to equate population policy with programmes intended to regulate fertility and family size. In view of the considerable importance now attached to family planning programmes as an instrument of national policy favouring lower fertility, the discussions that follow relate almost exclusively to this sphere.

B. SPREAD OF FAMILY PLANNING AS AN INSTRUMENT OF NATIONAL POPULATION POLICY

292. Several factors have given impetus to the rise in the number of Governments that have adopted family planning as a national policy. Paramount among them has been the growing awarences of the reciprocal relationship between demographic and economic and social change, along with the urgency of accelerating the pace of social and economic development.⁹² Another crucial factor is the concern for individual dignity, for the health of mothers and children and for the wellbeing of the family in general, which has intensified in recent years. Also the decision of some Governments to aid individuals in limiting and spacing the number of births has been hastened, if not precipitated by the public clamour for such assistance.93 Moreover, there exists a variety of other factors that have had varying degrees of influence upon policy shifts on the part of developed as well as developing nations. The following are particularly noteworthy: recognition of relationships between family size and structure and the status of women; and the proclamation by the

International Conference on Human Rights (1968) of the principle of family planning as a basic human right.

293. A number of developing countries have evolved a shift in policy as regards national family planning programmes,⁹⁴ and, as will be emphasized later, the changes have represented a response to one or a combination of several factors, but particularly to the exigence of economic development problems, or to the major health hazards arising from the incidence of criminally induced abortion.⁹⁵

294. For the implementation of a national family planning programme, Governments of developing countries were to some extent dependent upon the developed nations, which had either to formulate or to reshape their own policies before undertaking to provide the needed assistance either bilaterally or in direct agreement with the countries concerned. From 1962 at which time fewer than a half-dozen developing countries had initiated procedures for assisting their nationals to regulate family size and spacing, and only one developed country was providing bilateral aid in population action programmes ⁹⁶ — there were significant population policy developments in the advanced, as well as the emerging nations. Thus, one developed country which in 1962 had voted against assistance by the United Nations to action programmes in population and another that abstained from voting have since established channels for both bilateral and unilateral aid in this field.⁹⁷ It will be recalled in this connexion that the United States, which had shunned such activities up to 1960, reversed its policy, and by 1965 had begun to channel aid in family planning through its national development agency.⁹⁸ The agency had previously confined its population activities to statistical and health work.99 Several other developed countries took the decision to aid Governments, upon request, in the implementation of family planning programmes,

⁹⁶ Sweden, Swedish International Development Authority, *Swedish Development Aid* (Stockholm, 1968).

⁹² The United Nations Development Decade. Proposals for action (United Nations publication, Sales No.: 62.II.B.2), pp. v-ix, 6-7.

⁹³ See, for example, M. Muramatsu, ed., Japan's Experience in Family Planning — Past and Present (Tokyo, 1967), pp. 83-101.

⁹⁴ Colombia, the Dominican Republic, El Salvador, Honduras, and Trinidad and Tobago are among the countries that appear to have reversed the position indicated by the negative vote on the previously specified amendment to General Assembly resolution 1838 (XVII). Indications of a rise in or support for family planning activities have been noted in a number of countries that abstained from that vote, including Indonesia, Iran, Jordan, Mexico, Nicaragua, and the Philippines.

⁹⁵ M. Requena B., "The problem of induced abortion in Latin America", *Demography* (U.S.A., 1968), vol. 5, No. 2, pp. 785-799; and A. Faundes, G. Rodriguez-Galant, and O. Avendano, "The San Gregorio experimental family planning programme: changes observed in fertility and abortion rates", *Demography* (U.S.A., 1968), vol. 5, No. 2, pp. 836-845.

⁹⁷ General Assembly resolution 1838 (XVII), 18 December 1962. The Netherlands cast a negative vote, and the United States abstained on a proposal to amend operative paragraph 6 of the resolution to read, "... and that the United Nations give technical assistance, as requested by Governments, for national projects and programmes dealing with problems of population".

⁹⁸ United States. Agency for International Development, Assistance for Family Planning Programs in Developing Countries (Washington, 1967), pp. 4-5.

⁹⁹ Ibid., p. 4

and to increase their support to such projects through the United Nations and the specialized agencies.¹⁰⁰

295. Changes in the general international climate of opinion as regards national family planning programmes, which have been a major factor in national policy changes, are in some measure due to the moral influence of the United Nations and the specialized agencies, and the role of these international bodies in legitimatizing or reinforcing the respectability of such policy. Essentially, the influence of the international bodies was made evident through the deliberations and resolutions of the General Assembly and the Economic and Social Council, the Declaration of the Heads of State, and other related acts discussed in section C, below. Among other developments contributing to this changing international climate have been: (a) the improvement in contraceptive technology and the acceptability of new methods to broad segments of national populations; (b) results of field surveys of knowledge, attitude and practice (KAP) studies of family planning conducted in sixty-three countries representing developed as well as developing regions,¹⁰¹ which have provided evidence of a widespread desire of individuals for information and service relative to family planning; (c) an increase in the reservoir of technical competence and in the resources available for bilateral and unilateral technical aid in these fields; and (d) the course of the demographic transition in some countries, particularly in certain Asian regions of Chinese culture, making it evident that a more rapid fertility decline is possible.¹⁰²

1. Regions of high fertility — developing countries

296. The scope of national family planning programmes and their possible influence upon fertility levels vary greatly among countries having such a policy. The extent and effect of organized family planning programmes cannot be measured by the degree of Government participation nor by its official relationship to the project. There is a large and increasing number of countries in which no official policy of family planning exists, but where the Governments strongly support the activities. Such programmes may be equally successful in their aims as those officially sponsored and implemented by Governments.¹⁰³ Moreover, declaration, or announcement of a programme does not

¹⁰³ The China (Taiwan) programme is a case in point.

ensure its immediate implementation nor its effectiveness. In addition, there are considerable differences within countries in respect to the proportion of population reached by the programme and the quality of services rendered.

297. It is useful to note, further, that the official adoption of family planning as a policy seldom, if ever, represents a revolutionary change in Government policy. Such decisions more often are the culmination of a long process, during which family planning evolved from a small to a large private programme with steady gains in Government support. The developing countries therefore fall into several categories regarding the status of family planning. These are as follows:

(a) Countries that have adopted family planning as a national policy;

(b) Countries that have not proclaimed or adopted such a policy, but in which the Government gives material and other tangible assistance to privately sponsored programmes; and

(c) Countries for which there is no evidence of the foregoing, but in which activities are occurring which suggest that the Government may in due course take some positive step regarding family planning.¹⁰⁴

298. In 1952 India became the first country to proclaim and pursue an official policy of family planning for the purpose of reducing the birth rate and, consequently, of controlling the rate of national population growth. The first Five-Year Plan (1951-1956) provided for the promotion and assistance of family planning as an aid to economic and social development.¹⁰⁵ In 1955 Pakistan became the second country to follow this course and it, too incorporated the extension of family planning to broad segments of the population as one of the goals of its first Five-Year Plan (1955-1960).106 Precise information is lacking, but accounts from various sources suggest that as early as 1953 China (mainland) may have begun to enforce a national policy of birth control intended to regulate the rate of national population growth. However, these sources also indicate that the policy was rescinded after a few years and reinstated in 1960 or shortly thereafter for humanitarian reasons,107

¹⁰⁰ The Governments of Denmark, the Netherlands, Sweden, the United Kingdom and the United States have contributed to the Fund for Population Activities established by the Secretary-General of the United Nations in 1967. The Fund supports activities in all fields of population, including family planning.

¹⁰¹ The Population Council of New York, A Manual for Surveys of Fertility and Family Planning: Knowledge, Attitudes and Practice, New York (1970).

¹⁰² For additional information, refer to W. P. Mauldin, "Fertility studies: knowledge, attitude and practice", *Studies in Family Planning* (United States of America, June 1963) No. 7; D. Kirk, "Natality in the developing countries: recent trends and prospects", in S. J. Behram, *et al.*, eds., *Fertility and Family Planning: A World View* (Michigan, 1969), pp. 75-98; *The Population Newsletter*, Nos. 1-4 (1968, 1969) (United Nations), and "Progress and problems of fertility control around the world", Special Issue, *Demography* (United States of America, 1968), vol. 5, No. 2.

¹⁰⁴ The information upon which the countries have been classified was obtained from national development plans and other official documents. Where these were not available, other reliable sources were consulted in an effort to verify the existence of a national family planning programme. It is thus possible that, if there were no published evidence of an official policy, one or two countries may have been improperly classified. Where there was considerable doubt, however, officials were requested by correspondence to clarify the problem.

¹⁰⁵ Government of India, First Five-Year Plan (Delhi, 1953), p. 218.

¹⁰⁶ Government of Pakistan, First Five-Year Plan, 1955-1960 (Karachi, 1957), p. 192.

¹⁰⁷ People's Republic of China, Proposals of the Eighth National Congress of the Communist Party of China for the Second Five-Year Plan for Development of the National Economy (1958-1962), Peking. Chou En-Lai, Report on the Proposals for Development of the National Economy (Peking, 1965), p. 99; Shao Li-Tse in Jen-min Jih-pao, Peking, 18 December 1954, quoted in M. Freeberne, "Birth Control in China", Population Studies (London, July 1964), vol. XVIII, No. 1, p. 516; and ibid.

299. It is thus clear that use of the national family planning programme as a means of implementing policy in respect to population growth is a very recent, perhaps still emerging phenomenon. Probably the spread of these programmes in developing regions throughout the world, and in some developed nations as well, during the 1960s, was given impetus by the evolvement of relevant policy within the United Nations and the specialized agencies. The dialogue on the merits of family planning in which the United Nations family was first engaged in 1962 must necessarily have played a large role in crystallizing the views of Governments confronted with problems of rapid population growth and of complying with the demands by their nationals for means of regulating family size.

300. In addition to China (mainland), India and Pakistan, four other Asian countries had officially undertaken a national family planning programme by the end of 1966. The Korean programme was inaugurated in 1961, and Malaysia, Ceylon and Singapore followed in 1965.108 Three countries of northern Africa and two in the region south of the Sahara had, by this time, also included provisions for centrally administered national family planning programmes in their plans for economic and social development. The programmes of Tunisia and the United Arab Republic were inaugurated in 1965, and those of Kenya, Mauritius and Morocco the following year.¹⁰⁹ In other regions, the trend to the use of family planning as an instrument of national population policy also proceeded, very slowly during these years. Turkey took positive steps in 1965, and Fiji and the Government of Jamaica, in 1963.110

301. Thus, by the end of 1966, family planning had become official, national policy in only fourteen developing countries, of which one-half were in Asia. The combined population represented about 30 per cent of the 1965 population of the world's developing regions. If China (mainland), about whose policy there has been some doubt, is added, the figure is increased to about 60 per cent. This is not to say that such a large proportion of the inhabitants of developing regions were in a position to regulate family size, but only that the Governments were committed to providing information and means that would ensure voluntary parenthood.

302. Quite a different picture was seen by mid-1969, when the number of countries with a policy of national family planning had risen to twenty-seven, and they were to be found in each of the major developing regions. Accordingly, the combined population of countries with such a policy had increased to an estimated 61 per cent of the total in developing regions, using midyear 1967 population data as the base. The African countries in this category are Botswana, Ghana, Kenya, Morocco, Tunisia and the United Arab Republic. In Asia, they are Ceylon, China (mainland), China (Taiwan), India, Indonesia, Iran, the Republic of Korea, Malaysia, Nepal, Pakistan and Singapore. The remaining countries with official national family planning programmes are Barbados, Chile, Costa Rica, the Dominican Republic, Honduras, Jamaica, Nicaragua, and Trinidad and Tobago in the Latin American region, and Turkey and Fiji.¹¹¹ In terms of Government action, effects of the recent shift in international opinion on the efficacy of national family planning programmes, and of the growing emphasis on relationships between aspects of development, health and individual dignity and well-being and the control of family size, are perhaps most evident in the middle American and Caribbean region. Whereas only Jamaica among these countries had a well defined official policy at the end of 1966, the number had increased to seven in mid-1969. The move among Asian countries preceded the development of an international consensus on the subject.

303. The year 1965 seems to have been a pivotal one in regard to international action in family planning, for the Economic and Social Council clearly enunciated and re-emphasized the United Nations policy in resolution 1084 (XXXIX) on the importance of population growth as a factor influencing progress in the economic and social fields.¹¹² Also, in this year, six Governments announced the decision to implement national programmes. The movement particularly accelerated during the first half of 1969, when a number of countries either arrived at relevant policy decisions, or undertook studies on the need and advisability of establishing a policy. As noted earlier, however, only twenty-seven countries have actually taken the decision to implement a centrally administered, national programme of family planning.

¹⁰⁸ Republic of Korea, Summary of the First Five-Year Plan, 1962-1966 (Seoul, 1962), p. 31. Malaysia, First Malaysian Plan, 1966-1970 (Kuala Lumpur, 1965), p. 178; Singapore, White Paper on Family Planning, 27 September 1965; and Ceylon, "Problems of Establishing Viable Programmes of Family Planning in the Context of Public Health and Child Care", paper presented by the Government of Ceylon to the Second Commonwealth Medical Conference. London, July 1968.

¹⁰⁹ United Arab Republic. *The Charter* (Cairo, 1962), pp. 61-62; Republic of Turkey, *First Five-Year Development Plan*, *1963-1967* (Ankara, 1967), p. 60; Tunisia, Plan Quadriennal, 1965-1968 (Tunis, 1965), p. 20; The Population Council, "Declaration of Population". *Studies in Family Planning*, No. 16, January 1967; and Kenya, *African Socialism and its Application to Family Planning* (Nairobi, 1965), p. 31.

¹¹⁰ Fiji, Medical Department, *Report of the year 1965* (Suva, 1966), p. 10 and Jamaica, *Five-Year Independence Plan, 1963-1968* (Kingston, 1963), p. 11.

¹¹¹ In addition to paragraph 299 above, see "Statement prepared by the Government of Botswana, International Conference of Ministers Responsible for Social Welfare", United Nations document E/CONF.55/7/Add.1 (June 1968), p. 99; Statement by the representative of Chile, WHO, Official Records of the Twentieth World Health Assembly, No. 161, part II (Geneva, 1967), pp. 360-361; Costa Rica, Decree No. 3, La Gaceta, Diario Official (7 April 1967); Republic of Ghana, Population Planning for National Progress and Prosperity — Ghana Population Policy (Accra — 1969); His Majesty's Government of Nepal, "Nepal population growth, projections, family planning and maternal and child health" (April 1969); Republic of Indonesia, Digest of the Five-Year Development Plan 1969-1974 (Djakarta, 1969), pp. 16-17; Statement by the Representative of Trinidad and Tobago, WHO, Official Records of the Twentieth World Health Assembly, No. 161, part II (Geneva, 1967), p. 87.

¹¹² Official Records of the Economic and Social Council, Thirtyninth Session, Supplement No. 9.

304. The situation is appraised somewhat more realistically, however, if account is taken of the countries in which privately organized and sponsored programmes are in effect and flourishing with Government support. According to the information available, these countries include Bermuda, Colombia, Hong Kong, Jordan, Mauritius, the Philippines and Thailand. Moreover, there are additional countries, approximately a dozen at mid-1969, whose Governments maintain a laissezfaire, permissive attitude towards privately operated birth control programmes. But more often these programmes are on a very small scale and reach only a minor segment of the national population. Concrete interest in the advisability of establishing a family planning programme has also been evinced by the Governments of Haiti, Réunion and Syria. Additions to the number of national family planning programmes will very probably be drawn from countries in which the projects already have the benefit of Government support.

305. Evidence of a continuing spread of national family planning programmes is also found in the expressed concern of Government leaders engaged in the problems of economic development; in the conduct of experimental or pilot projects of family planning, and in the spread of interest in surveys of knowledge, attitude and practice relevant to family planning. Experience has shown that such projects tend to stimulate officials to implement national programmes of family planning.

306. Obviously, the month to month changes in Government position and in the scope of activities in family planning are such that any inventory is out of date before it can be completed. By and large, Governments of these countries tend to become increasingly closely identified with action programmes.

307. The general categories of reasons given by Governments of developing nations for the adoption of family planning as a national policy have already been mentioned. However, some of the specific bases are noteworthy, for they indicate to some extent what Governments consider as their more important problems of development.

308. The achievement of a lower birth rate is viewed by some Governments as a means of reducing the growth rate of the labour force and, therefore, of alleviating problems of unemployment and underemployment.¹¹³ Some officials are specifically interested in eradicating the shortage of dwelling facilities,¹¹⁴ while other are primarily interested in improving facilities for and lowering the cost of education.¹¹⁵ Some countries have taken the action as a means of generally alleviating the pressure of population upon resources.¹¹⁶

309. The improvement of health standards is another reason given for the adoption of family planning as a national policy. An increasing number of countries have begun to promote family planning on a national scale in consideration of the fact that fewer births at longer intervals will enhance the health of both mother and children and will facilitate an improvement in the care and rearing of children.¹¹⁷

310. In addition, the impetus for many of these programmes has been the high incidence of criminal abortion which takes a phenomenal toll in the lives and health of mothers, as well as the infants, when the abortion attempt is unsuccessful.¹¹⁸ Some Governments favoured family planning programmes as an aid in the reduction of sterility and nearly all Governments whose programmes to promote and assist the regulation of births among their nationals were commenced during the last several years have specifically taken into account the humanitarian principle of voluntary parent-hood.

311. Developments in certain countries of Africa south of the Sahara suggest that the movement in that region will progress slowly.¹¹⁹ According to the information presently available, Governments of several of these countries are at present of the view that a higher rate of population growth would be advantageous to their economic development. These countries are Madagascar, Malawi and Zambia. Two other countries, both also in Africa, are believed on the basis of available published reports, to have banned contraceptives and to have made their sale illegal. They are the Ivory Coast and Upper Volta.¹²⁰ Low density and the attendant problems of providing adequate services for a sparsely settled population are the reasons generally given in this region for policies favouring higher fertility. Some Governments have mentioned an inadequacy of manpower resources as the reason. 121

¹¹⁸ World Health Organization, Official Records of the Twentieth World Health Assembly, No. 161, part. II (Geneva, 1967), pp. 360-361.

¹¹⁹ See, for example, statements of Government representatives in the *Twenty-First World Health Assembly*, "Health Aspects of Population Dynamics" (WHO document, A 21/P and B/SR.19, 21 May 1968).

¹²⁰ United States Agency for International Development, *Population Program Assistance* (Washington, 1968), pp. 125; 149. ¹²¹ Official Records of the World Health Assembly, Twentyfirst. "Health Aspects of Population Dynamics" (WHO document, A 21/P and B/SR/19, May 1968).

¹¹³ Republic of Kenya, African Socialism and its Application to Planning in Kenya (1965), p. 31; Pakistan, Third Five-Year Plan, 1965-1970 (June 1965), p. 360; Republic of Turkey, First Five-Year Plan, 1963-1967 (Ankara, 1963), p. 65.

¹¹⁴ Government of Pakistan, *Third Five-Year Plan*, 1965-1970 (June 1965), p. 261; Republic of Kenya, *Development Plan*, 1966-1970 (1966), pp. 51-52.

¹¹⁵ Republic of Kenya, African Socialism and its: Application to Planning in Kenya (1965), p. 31; Malaysia, First Malaysia Plan, 1966-1970 (1965), p. 178; Government of Pakistan, op cit., p. 261; Republic of Ghana, Population Planning for National Progress and Prosperity — Ghana Population Policy (1969), p. 19.

¹¹⁶ Republic of Ghana, op cit., p. 19; Republic of Kenya, op cit., pp. 51-52; Government of Pakistan, *Second Five-Year Plan, 1960-1965* (Karachi, 1960), p. 334.

¹¹⁷ Fiji, Medical Department, Report of the Year 1965 (Suva, 1966), p. 10; India, First Five-Year Plan, 1951-1956 (Delhi, 1953), p. 218; Government of Jamaica, Five-Year Independence Plan, 1963-1968 (1963), p. 11; Republic of Kenya, Development Plan, 1966-1970 (1966), pp. 51-52; Malaysia, First Malaysia Plan, 1966-1970 (1965), p. 178; Government of Pakistan, First Five-Year Plan, 1955-1960 (Karachi, 1957), p. 192.

2. Regions of low fertility — developed countries

312. None of the economically advanced nations has ever instituted an official policy specifically designed reduce the rate of national population growth. Those developed countries that have had a policy regarding population growth were essentially pro-natalist. However, in several of them, measures in existence were intended to ensure voluntary parenthood, so that effective and harmless means of birth control were readily available while family allowances and other rewards were extended to those desiring children.

313. It is characteristic of the more advanced countries to provide allowances in order to distribute the burden of childbearing over the entire society. This is true also among some developing nations. However, among developed countries, such measures are usually designed to promote social justice and do not reflect a desire on the part of Governments to influence the level of fertility. As recently as the end of 1966, however, a number of Western developed countries had what might be termed pro-natalist policies. In addition to certain restrictions relative to contraceptives, both Belgium and France had systems that rewarded the large family.¹²² Austria, Ireland and, until recently, Canada, were also in this category.¹²³ Portugal and Spain forbade any organized efforts to spread knowledge of birth control, and Spain had special awards to encourage large families.¹²⁴ Luxembourg, too, promoted ther large family and provided special services for those seeking to alleviate problems of sterility.¹²⁵

314. Beginning in 1955, the Soviet Union and most of the eastern European countries, excluding Albania, took actions that had the effect of restricting population growth.¹²⁶ However, the measures were designed for humanitarian purposes, that is, to promote the emancipation and creativity of women, to make parenthood voluntary and to enhance the health and well-being of the mother and other family members. Contraceptives and relevant information were obtainable, and abortion was made legal under specific conditions that varied according to the country.¹²⁷ Abortions were

¹²⁵ *IPPF*, No. 153, (November 1966).

¹²⁷ K. H. Mehlan, "The socialist countries of Eastern Europe" in B. Berelson, *et al.*, ed., *Family Planning and Population Programs*, pp. 207-208.

— 72 —

legalized in the Soviet Union and the eastern European countries in order to reduce the high frequencies of illegally induced abortions performed under unsafe medical conditions. But in the Soviet Union there are various awards for motherhood which may have a positive effect upon fertility.¹²⁸ An apparent contradiction exists also in the policies of a number of other developed countries, including the United Kingdom, the Scandinavian countries and several in eastern Europe.¹²⁹ The Governments attempt both to mitigate the economic and social burdens of parenthood and to assist those desiring few or no children to accomplish their goals. Thus, because parenthood and family size are considered to be the prerogative of the individual concerned, a country may take steps that facilitate family planning, on the one hand, while on the other, there may be measures that encourage the building of large families. These provisions may coexist both in countries that favour higher rates of population growth and in those preferring constant or declining growth rates.

315. Until very recently, only a few of the developed countries had actively encouraged family planning, and even in these, there was never a national policy of family planning or birth control. It is well known, for example, that beginning in 1952, the Government of Japan gave strong support to programmes of family planning, including the legalization of abortion under specified conditions. These steps were taken to counteract the increasing incidence of illegally induced abortions, which often impaired the health, or took the life of the mother. At that time, knowledge of contraception was not very widespread, but in recent years, family planning through the control of conception has been adopted on a wider scale, and the rate of abortion has

316. A number of developed countries that had previously had either liberal laws of birth limitation or which had preserved a laissez-faire policy have now adopted measures that are suggestive of a national policy. Although at this writing, there is not a national law relating to family planning in the United States, that Government has undertaken to assure that all women in the country may, if they choose, regulate family size. To this end, information and services have been extended through federal aid programmes to all

¹²² D. V. Glass, "Western Europe" in B. Berelson, et al., eds., Family Planning and Population Programs, (Chicago University Press, Chicago, 1966), p. 183.

¹²³ International Planned Parenthood Federation, *IPPF News*, No. 161, (United Kingdom, 1967), p. 4.

¹²⁴ *Ibid.*, p. 205 f. Also, U.S. Department of Health, Education and Welfare, op cit., *Social Security Programs Throughout the World*, pp. 180-181.

¹²⁶ A. Klinger, "Demographic effects of abortion legislation in some European socialist countries", *Proceedings of the World Population Conference*, 1965, vol. II (United Nations publication, Sales No.: 66.XIII.6), p. 89. The Government of Czechoslovakia, however, in response to an inquiry carried out by the Secretary-General of the United Nations, stated, "It is the aim of the Government of the Czechoslovak Socialist Republic to pursue pro-natality and pro-population policy". "Inquiry among Governments on problems resulting from the interaction of economic development and population changes: report of the Secretary-General" (E/3895/Rev.1), p. 36.

¹²⁸ Sbornik Zakonov USSR 1938-1961 (Code of the laws of the USSR 1938-1961), Moscow, Izvestia Sovietov, 1961, p. 714; and A. M. Vostrikova, "Female fertility and methods of studying it in the USSR", *Proceedings of the World Population Conference*, 1965, vol. II (United Nations publication, Sales No.: 66.XIII.6), pp. 239-241.

¹²⁹ D. V. Glass, "Western Europe" in B. Berelson, *et al.*, ed., op cit., pp. 183-206; and J. Retti, "Europe and Near East Region Report", *Proceedings of the Eighth International Conference of the International Planned Parenthood Federation* (London, 1967), pp. 158-162.

¹³⁰ Muramatsu, M., editor-in-chief, Japan's Experience in Family Planning — Past and Present, (Tokyo, 1967), pp. 83-100; and Administrative Aspects of Family Planning Programmes (United Nations publication, Sales No.: 66.II.F.10), p. 13.

women who do not have the private means of obtaining the necessary information, services and supplies.¹³¹ In the United States, the Family Planning Services and Population Research Act of 1970 provides that family planning services be made readily available to all persons desiring them. It would proclaim family planning as a basic human right and would authorize the Federal Government to expand and improve family planning services and population research activities.¹³² Moreover, in a message to the Congress, the President proposed that the Congress of the United States should create a "Commission on Population Growth and the American Future".133 Progressivism also characterizes the new laws enacted in the United Kingdom. The 1967 Family Planning Act will enable individuals to obtain through the National Health Service, the services that they require in order to regulate family size, while more liberal grounds for abortion were authorized by the 1967 Abortion Act.¹³⁴

317. In 1969 Yugoslavia became the first developed nation to adopt a national policy of family planning. As in the United Kingdom and the United States, the goal is to ensure voluntary parenthood. The programme is intended also to enhance the dignity of the family and to protect the health of mothers and children. It recognizes as a basic human right the right of parents to decide the number and spacing of their children and emphasizes that a close relationship exists between voluntary parenthood, the status of women and general living standards, and it is also based on the belief that voluntary parenthood is in the interest of both the individual and society.¹³⁵

318. Very significant, although perhaps less farreaching changes favouring voluntary parenthood have also occurred recently in several other countries. In France, for example, laws enacted in 1967 and 1969 now permit the sale of contraceptives, although antinatalist propaganda and commercial advertising are still prohibited.¹³⁶ It is noteworthy, however, that the possible effects of the new regulations on contraceptives may be counterbalanced by the influence of new measures providing more liberal family allowances.¹³⁷ Also, the Canadian Criminal Code was amended in 1969 to

¹³¹ United States, Department of Health, Education and Welfare, *Family Planning Nationwide Opportunities for Action*, (Washington, 1968), p. 7.

¹³² "Family planning: a basic human right", *Congressional Record.* Proceedings and Debates of the Ninety-first Congress, First Session (Washington, 1969). Thursday, 8 May 1969.

¹³³ The President of the United States sent the message to the Congress of the United States on 18 July 1969. It also stressed that the appropriate government agencies should give high priority to international co-operation in problems of personnel, research and funding for family planning programmes.

¹³⁴ International Planned Parenthood Federation, *Family Planning in Five Continents* (London, 1969), p. 28.

¹³⁵ Yugoslavia, *Resolution on Family Planning*, enacted by the Federal Assembly of Yugoslavia. Bill No. AS 1185, 26 April 1969.

¹³⁶ France, "Loi relative à la régulation des naissances", Journal officiel de la République française (29 December 1967 and 4 February 1969).

¹³⁷ Le Monde (Paris, 9 February 1969), p. 28.

permit the sale and advertisement of contraceptive devices in Canada.¹³⁸

319. A different movement appears to be under way in certain countries that over the past decade and a half have had very liberal laws relating to contraception and birth control and where fertility reached low levels in the mid-1960s. Thus, in 1966 the Government of Romania enacted a law forbidding abortions and making the manufacture or distribution of contraceptives illegal. In addition, it increased the wage tax on unmarried person and childless individuals over the age of twenty-five years, increased allowances for the third child, and adopted other measures intended to increase the birth rate and enhance the rate of national population growth.¹³⁹

320. Recently, the Government of Bulgaria has also adopted measures favouring higher fertility. The Council of Ministers issued a decree effective 1 January 1968 greatly increasing cash birth payments, maternity leave grants and awarding such privileges for large families as loans for home building and school grants. Moreover, in the decree, which is intended to encourage a higher birth rate and large families, it was indicated that the directive relating to abortion would be amended, and abortion for women under the age of forty-five or with less than three children would be authorized only by a medical committee.140 In Hungary, too, changes in family allowances favour a larger family, the ideal size appearing to be three children. Thus, the Council of Ministers in May 1968 issued a decree covering members of agricultural co-operatives with the new grants beginning with the second child, increasing substantially for the third child and being the same for children of fourth and higher parity as for the second child.¹⁴¹ A government resolution of 1 January 1967 provided that if a working woman gives birth and stays at home up to two and one half years following confinement, she may receive a stipend of 600 forints.¹⁴²

C. MANDATES OF THE UNITED NATIONS AND THE SPECIALIZED AGENCIES

321. In the first fifteen years of its existence, the United Nations had granted Governments assistance in various fields of population. During this period no policy position was taken on the matter of aid to Governments in family planning, although such aid had been granted to three Governments.¹⁴³ The United Nations work

¹³⁸ Chapter 41 of the Statutes of Canada 1968-69. Amendment to Article 150 of the Criminal Code (27 June 1969).

¹³⁹ News From Romania, No. 73 (778) (12 October 1966).

¹⁴⁰ "Bulgaria", International Social Security Review, vol. XXI, No. 1 (1968), pp. 138-142.

¹⁴¹ "Hongrie", *Revue internationale de sécurité sociale*, vol. XXII, No. 1 (1969), pp. 114-115.

¹⁴² Magyar Közlöny (Budapest, 29 January 1967).

¹⁴³ Experts were assigned to Barbados in 1953 and 1957, to India in 1952 and to the United Arab Republic in 1955. "Objectives and Accomplishments of the United Nations in the Fields of Population" (E/CN.9/158), pp. 15-16.

in population had been essentially related to technical demography. Indeed, the Organization pioneered in emphasizing and demonstrating the practical application of demography to economic and social planning and policy-making.¹⁴⁴ Moreover, proposals for concerted action to aid economic and social advancement in developing countries during the first United Nations Development Decade specified the conditions of population growth in which a certain measure of economic progress could be achieved, thereby drawing international attention to the relationship between these factors.¹⁴⁵

322. The General Assembly in 1962 considered for the first time the issue of population growth and economic development, the purpose being to ascertain the role that the United Nations should play in assisting Governments to implement programmes intended to moderate population growth to rates more compatible with economic progress. In resolution 1838 (XVII), the Assembly recognized that:

"... the health and welfare of the family are of paramount importance, not only for obvious humanitarian reasons, but also with regard to economic development and social progress, and that the health and welfare of the family require special attention in areas of relatively high population growth..."

It recognized further that:

"... it is the responsibility of each Government to decide on its own policies and devise its own programmes of action for dealing with the problems of population and economic and social progress...".¹⁴⁶

323. The question having been aired during the General Assembly deliberations, there ensued a number of closely related developments involving members of the United Nations system of organizations and their mandates and activities in the population field. An influential development was the Secretary-General's inquiry among Member States in 1963-1964 to ascertain what in their views were "the particular problems confronting them as a result of the reciprocal action of economic development and population changes" as requested by the General Assembly in resolution 1838 (XVII).¹⁴⁷ The Asian Population Conference convened in 1963 was also an important milestone, for it unanimously recommended that United Nations technical assistance activities should be expanded to include assistance to Governments in family planning.¹⁴⁸ A

¹⁴⁸ The Asian Population Conference, 1963 (United Nations publication, Sales No.: 65.II.F.11), p. 49.

supporting resolution (54 (XX)) was adopted by the Economic Commission for Asia and the Far East.¹⁴⁹

324. Notable impetus was given to assistance by the United Nations to action-oriented government projects in the population fields when the Economic and Social Council, in a unanimous resolution (1048 (XXXVII)) at its thirty-seventh session in 1964 called for the intensification of United Nations efforts to assist governments of interested developing countries in coping with the population problems confronting them.¹⁵⁰ This position was further strengthened in a resolution (1084 (XXXIX)) by the Council in 1965, in which it affirmed the existing authority of the Secretary-General of the United Nations to provide advisory services in action programmes in the fields of population at the request of governments.¹⁵¹

325. In the course of these events, the climate of international opinion increasingly tended to favour the expansion of United Nations activities in action oriented population programmes. Thus, on Human Rights Day 1966, the Secretary-General introduced a declaration signed by the Heads of State of twelve countries, proclaiming as a basic right the opportunity for individuals to decide the number and spacing of their children. Finally, at the end of 1966, the General Assembly, in resolution 2211 (XXI), fully and unanimously endorsed an expanded programme of United Nations activities in the population fields, including the provision of information and advisory services.¹⁵²

326. Family planning programmes are multidisciplinary in nature. Thus the interested members of the United Nations family are required to co-ordinate efforts to fill government requests for information and advisory services in family planning. Resolutions adopted by the eighteenth and nineteenth World Health Assemblies in 1965 and 1966, respectively, enabled the World Health Organization to provide reference services on studies of the medical aspects of sterility, methods of fertility control and the health aspects of population dynamics. Its activities also were to include studies of the health aspects of human reproduction, and the provision of technical advisory services to Governments, upon request, within existing maternal and child health (MCH) centres and on a demonstration basis.¹⁵³ The United Nations Children's Fund works jointly with WHO in providing these services. However, in keeping with the May 1966 resolution of its Executive Board, UNICEF assistance was at that time limited to its usual forms of aid, such as the training

¹⁴⁹ Annual Report of the Economic Commission for Asia and the Far East (March 1963-March 1964) (E/3876/Rev.1), pp. 128-9.

¹⁵⁰ Official Records of the Economic and Social Council, Thirty-seventh Session, Supplement No. 1.

¹⁵¹ Official Records of the Economic and Social Council, Thirtyninth Session, Supplement No. 9.

¹⁴⁴ National Programmes of Analysis of Population Census Data as an Aid to Planning and Policy-making (United Nations publication, Sales No.: 64.XIII.4).

¹⁴⁵ The United Nations Development Decade: Proposals for Action (United Nations publication, Sales No.: 62.II.B.2), pp. vii, 7.

¹⁴⁶ Official Records of the General Assembly, Seventeenth Session, Annexes, agenda item 38, document A.C.2/L.657/Rev. 1/Add.1.

¹⁴⁷ For results of the inquiry, see "Inquiry among Governments on problems resulting from the interaction of economic development and population changes: report of the Secretary-General" (E/3895/Rev.1).

¹⁵² Official Records of the General Assembly, Twenty-first Session, Supplement No. 16.

¹⁵³ Official Records of the World Health Organization, 143, annex 18, p. 35; 151; annex 13, p. 60 (resolutions WHA 18.49 and WHA 19.43.)

of personnel and the provision of vehicles, supplies and equipment for maternal and child health services.¹⁵⁴

327. Problems of communication are the concern of the United Nations Educational, Scientific and Cultural Organization. Thus, at its General Conference in 1966 UNESCO resolved that the agency should, upon request, undertake scientific studies on the effectiveness of the various means of education and information being utilized in those States interested in family planning programmes.¹⁵⁵

328. The year 1966 was therefore a critical one, for it was not until its close that all of the interested members of the United Nations system of organizations had mandates enabling them to undertake, at the request of governments, some activities in family planning. Since that year, action oriented population activities have gained momentum within the United Nations system, as these agencies have since either been given new mandates or have been authorized to extend activities approved in earlier mandates. Implementation of the extended programme has been aided by the Secretary-General's decision in June 1967 to establish a Trust Fund for Population Activities, the resources of which would derive from voluntary contributions of governments, non-governmental organizations and private individuals.¹⁵⁶ Another significant event was the addition, on Human Rights Day 1967, of the signatures of eighteen Heads of State to the Declaration on Population introduced by the Secretary-General on Human Rights Day 1966, bringing the member of sponsors to thirty.157

329. During this period, emphasis was increasingly focused upon the humanitarian virtues of voluntary parenthood, although the benefits to society in terms of the human as well as the economic elements were in general better understood. The adoption by the International Conference on Human Rights (1968) of a resolution proclaiming as a basic human right the right of individuals to decide freely and responsibly on the number and spacing of their children was thus an act of major importance.¹⁵⁸ So, too, was the debate by the Commission on the Status of women at the Commission's twenty-first session in 1968, which emphasized the relevance of studies to fill the gaps in knowledge of the relationships between family planning and the status of women and adopted a resolution (1326 (XLIV)) calling for a broad inquiry into these interrelationships.¹⁵⁹

330. The ECAFE region was in the forefront in the shaping of action oriented policy. Similarly, it became in 1968 the first of the regional economic commissions to establish a regional population office. At its twenty-third session, ECAFE recommended, *inter alia* the establishment of a regional population centre and recognition of the Asian Population Conference as a statutory organ of the Commission to be convened every ten years. It also recommended (resolution 14 (XXIII)) that the ECAFE secretariat should give special attention to all aspects of the population question and its impact upon economic and social development, and to the emerging needs of Governments for assistance in training, information and advisory aspects of population questions.¹⁶⁰

331. An interesting development with possible implication for the future course of "family planning" programmes arose in the deliberations of the Ad Hoc Committee of Experts on Programmes in Demographic Aspects of Social Developpement.¹⁶¹ In the Committee's view, "family planning" should be broadened to include most aspects of family life. In addition to family size and related consideration relative to reproduction, the dignity and well-being of the person and the family also depended on "the extent to which their lives were permitted to be in consonance with the respective cultural and religious considerations". Policies developed in the broad context of family planning would, in the Committee's opinion, include provision for the aged, protection of health, improvements in the status of women, the spread of education, child labour laws, and so on.¹⁶²

332. Subsequent to 1966, the governing bodies of the specialized agencies and the United Nations Children's Fund, broadened the authority of the agencies in family planning and allied fields and, in particular, increased the scope of activities for providing aid in family planning to Governments requesting it. Accordngly, the Twentieth and Twenty-first World Health

¹⁵⁴ "Possible role of UNICEF in family planning: recommendations of the Executive Director to May 1966 Executive Board Session and Action of the Executive Board in May 1966" (UNICEF document E/ICEF/CRP/67-13) 10 March 1967; *Official Records of the Economic and Social Council, Forty-first Ses*sion, Supplement No. 13 (E/4220/Rev.1), paras. 166-191.

¹⁵⁵ Seventy-sixth session of the UNESCO Executive Board. Item 5.1 of the provisional agenda (76/Ex/16, April 1967), p. 7.

¹⁵⁶ For information, see "Population and its relation to economic development: Projects financed through the United Nations Trust Fund for Population Activities". *Official Records of the Economic and Social Council, Forty-fifth Session, Annexes,* agenda item 5, document E/4551, annex II.

¹⁵⁷ The thirty signatories are: Australia, Barbados, Colombia, Denmark, the Dominican Republic, Finland, Ghana, India, Indonesia, Iran, Japan, Jordan, the Republic of Korea, Malaysia, Morocco, Nepal, the Netherlands, New Zealand, Norway, Pakistan, the Phillipines, Singapore, Sweden, Thailand, Trinidad and Tobago, Tunisia, the United Arab Republic, the United Kingdom, the United States of America and Yugoslavia. The Declaration is published, among other places, in the United Nations Population Newsletter, No. 1, (New York, April 1968), and in Official Records of the Economic and Social Council, Forty-fifth Session, Annexes, agenda item 5, document E/4551, annexe I.

¹⁵⁸ "Human Rights aspects of Family Planning", resolution XVIII. Final Act of the International Conference on Human Rights (United Nations publication, Sales No.: E.68.XIV.2), chap. III.

¹⁵⁹ Official Records of the Economic and Social Council, Forty-fourth Session, Supplement No. 1, p. 13.

¹⁶⁰ Annual Report of the Economic Commission for Asia and the Far East, 1966-1967, Official Records of the Economic and Social Council, Forty-third Session, Supplement No. 2, pp. 198-200.

 $^{^{161}}$ The Committee was convened by the Secretary-General at United Nations Headquarters from 7 to 11 April 1969 (E/CN.9/222).

¹⁶² Ibid., para. 27.

Assemblies in 1967 and 1968, respectively, took actions enabling WHO to undertake population activities of a much broader scope than had previously been possible. The Twentieth Assembly authorized WHO to render advisory service on any aspect of human reproduction, including fertility, sterility and fertility regulation.¹⁶³ The Twenty-first Assembly in 1968 extended the scope of the agency's programme to include research on the psychological factors related to the health aspects of human reproduction; emphasized the need for adequately trained health manpower in all fields, including family planning, and requested WHO to continue assisting Governments in integrating family planning with basic health services.¹⁶⁴

333. Another significant change relates to actions of the Executive Board of the United Nations Children's Fund. In 1967 that Board decided that UNICEF may assist family planning as a part of a maternal and child health (MCH) service. The types of family planning projects that UNICEF might assist were enumerated as (a) training in medical and health care, including family planning, for health personnel; and the expansion of basic health services, including maternal and child health (MCH) services.¹⁸⁵ Further, at a meeting of the UNICEF-WHO Joint Committee on Health Policy early in 1969, it was determined that UNICEF policy as regards family planning conformed closely with that of WHO.¹⁶⁶

334. Following the Economic and Social Council resolution (1279 (XLIII)) in August 1967, calling upon UNESCO to pursue actively its education, social sciences and mass media activities in connexion with its work in population, the UNESCO Executive Board endorsed the Director-General's broad perspectives for a ten-year programme in this field.¹⁶⁷ Furthermore, the UNESCO General Conference in 1968 adopted a resolution requiring the agency to meet demands of member states for assistance in the fields of population and family planning regarding education, the social sciences and communication.¹⁶⁸

335. The influence of rapid population growth and the consequent changes in population structure upon unemployment, underemployment and attendant problems in the improvement and utilization of manpower resources, led the ILO to consider in 1967 the advisability of a relevant action-oriented population programme within its field of competence.¹⁶⁹ Accordingly, the Governing Body of the ILO in 1968 considered that the agency's work in this sphere should relate to information and to education, research and the promotion of participation in family planning activities on the part of medial services catering to employees.¹⁷⁰

336. The FAO concern for supply, demand and requirements for food, for problems of the rural and agricultural population and related questions was the basis for the enlargement of the agency's programme to include population action-oriented work. Within the context of its recognized responsibilities in the fields of agricultural production and nutrition, the agency supports policies aimed at attaining moderate rates of population growth.¹⁷¹

D. Assistance rendered to Governments by the United Nations and the specialized agencies

337. As mentioned earlier, the United Nations had provided assistance in action-oriented population activities to only three Governments prior to 1962,¹⁷² when the matter was first deliberated in the General Assembly. Subsequently, at the request of the Government of India, the United Nations in 1965 appointed a team of experts to advise the Government on its national family programme.¹⁷³ Also, the United Nations has made available to Governments in the Asia and the Far East the services of regional advisers on family planning and problems of demographic research and analysis.

338. But the number of projects undertaken in 1967-1969 reflects the greatly enlarged scope of the organizations' mandates in the fields of population. These activities have generally fallen into the following categories : (a) agency missions and interagency,

¹⁷³ "Report on the family planning programmes in India" (TAO/IND/48).

¹⁶³ Resolution WHA 20.41. Official Records of the World Health Assembly, No. 160, part. I, Resolutions and Decisions. (WHO, Geneva, 1967), p. 25.

¹⁶⁴ Resolution 21.43. Official Records of the Twenty-first World Health Assembly, No. 168, part I. Resolutions and Decisions. (WHO, Geneva, 1968), p. 21.

¹⁶⁵ United Nations Children's Fund. Report of the Executive Board. Official Records of the Economic and Social Council, Fortythird Session, Supplement No. 8 (E/4403-E/ICEF/563), para. 44.

¹⁶⁶ Report of the UNICEF-WHO Joint Committee on Health Policy (E/ICEF/587, March 1969).

¹⁶⁷ United Nations *Population Newsletter*, No. 1 (New York, April 1968), p. 21.

¹⁶⁸ Resolution 1.241, UNESCO, *Records of the General Conference*. Fifteenth Session. Resolutions. (Paris, 1969), pp. 23-25.

¹⁶⁹ Resolution No. 4, *Resolutions Adopted by the International Labour Office at its Fifty-first Session* (Geneva, 1967), pp. 5-7.

¹⁷⁰ United Nations, *Population Newsletter*, No. 4 (New York, February 1969), pp. 19-22.

¹⁷¹ E/4486/Add.1, annex II (Co-ordination in the fields of population). *Thirty-fourth Report of the Administrative Committee on Co-ordination*. Food and Agriculture Organization of the United Nations. *Report of the Fourteenth Session of the Conference*. 4-23 November 1967 (Rome, 1968), pp. 12-13. See also FAO Conference resolution No. 1/67.

¹⁷² Experts were assigned to Barbados in 1953 and 1957, upon the request of the Government, to advise upon ways and means of dealing with population problems and on the development of a system of records in connexion with a programme of state-supported family planning clinics. Demographers were assigned to India during 1952 to co-operate with experts assigned by the World Health Organization, in an experiment with the use of the "rhythm" method of family planning as an instrument for the Government's population policy programme. Finally, a demographer was assigned in 1955 to advise the National Population Commission of the United Arab Republic (Egyptian Region) on a programme of research and experimentation aimed at the development of a factual basis for national population policies. "Objectives and accomplishments of the United Nations in the field of population" (E/CN.9/158), pp. 15-16.

interdisciplinary missions appointed to aid Governments in one or more aspects of family planning; (b) seminars and technical meetings intended to enhance knowledge of specific technical aspects of national family planning programmes; (c) institutionalization of expert assistance to Governments in the development of population programmes (epitomized specifically by the creation of population programme officers); and (d) further efforts towards the institutionalization of population research.

339. The establishment of the United Nations Fund for Population Activities in 1967 enabled the United Nations to greatly enlarge its programme of assistance to Governments in family planning and related fields. Ten technicians, known as population programme officers, were assigned to strategic posts throughout the developing regions to aid Governments in assessing problems of population in relation to development and in devising policies intended to cope with those problems. The services of these officers are available upon request to any Government, and their concern is not only with questions about the technical aspects of population growth and family planning, but also with demographic statistics, health, communication, education and training for family planning, and other related problems.

340. Increasingly, the United Nations and the specialized agencies co-operate to fill requests for missions dealing specifically with family planning. Occasionally, however, the requirements of a Government may be within the terms of reference of a single agency or of an office within the United Nations. The requests fall mainly into two categories, namely, feasibility missions and evaluation missions. One project in the first category was an interagency mission to ascertain the most suitable location for a pilot or demonstration effort in family planning and to determine its scope. The service was provided at the request of the Government of Colombia. Another in this general category in co-operation with the Government of Honduras, involved determining the practicability of appointing, upon the Governments' request, an international interagency mission for the full evaluation of an ongoing national family planning programme.

341. Members of the United Nations system of organizations are playing an increasingly significant role as impartial advisers for population action programmes. As a growing number of national family planning programmes attain sufficient maturity to warrant evaluation of the quality of the family planning service and of the efficiency with which it is administered, requests for such aid become more frequent. Missions in this category — that is full evaluation of national programmes — normally require a team of technicians representing competence in demography, social psychology or communications, public administration, medicine, economics and other, related disciplines. Government requests however do not always require a mission with such a full complement of technicians.

342. Since 1968 and at the request of Governments, United Nations missions for the evaluation of family planning programmes have been sent to : Algeria, Ceylon, Colombia, Costa Rica, Honduras, India (two missions), Indonesia, Iran, Pakistan, the United Arab Republic and Western Samoa.¹⁷⁴ Many of the missions have produced extensive reports and recommendations for action. The United Nations also has participated in several missions concerned with the development of large-scale demographic projects.

343. Aid to Governments in family planning relates not only to the limitation of births, although by far the major share of requests are for that service, but also to problems of sterility, health education and the training of medical and paramedical personnel and personnel in other disciplines. The World Health Organization and the United Nations Children's Fund are rendering some form of assistance in aspects of family planning to a large number of countries in the developing regions, including two countries in Africa, seven in Central America and seven in Asia.¹⁷⁵ Aid in communications aspects of national family planning programmes has also been provided by UNESCO,¹⁷⁶ and the agency is developing plans to fulfil seven requests outstanding at mid-1969 for assistance in family life education.

E, CONCLUSION

344. As is evident from the foregoing, numerous Governments, including those of the most populous countries, are seriously concerned with the tempo of population growth and with the burdens borne by families with large numbers of children. A number of other Governments, often with comparatively small and sparse populations, prefer the continuation of high rates of population growth. Since policy in this respect is of course a matter to be determined by each country, and since population problems vary from country to country, different attitudes and policies towards population growth still prevail. From a world-wide point of view, it can nevertheless be noted that a turning point in Governments attitudes and policy positions has been passed. For a majority of the world's population, Governments desire to see the rate of growth reduced and the economic and social welfare of families improved.

345. Other policy issues may arise, for example, the geographic distribution of the population and its sometimes alarmingly rapid concentration in big cities. Several countries have adopted programmes by which the flow of internal migration can be partly diverted into more desirable directions. It is possible that with the results of new censuses this area of concern may also receive more attention. Countries with small populations, or low levels of urbanization, may in the meantime

¹⁷⁴ Results of the Pakistan mission are contained in "Report on an evaluation of the family planning programme of the Government of Pakistan" (ST/SOA/SER.R/9, April 1969). Reports on the other missions are in preparation.

¹⁷⁵ The World Health Organization, "Health aspects of population dynamics" (WHO document A21/P&B/9, April 1968), pp. 3-4.

¹⁷⁶ UNESCO, Report of the Director-General on the Activities in the Organization in 1968 (Paris, 1969), pp. 123-124.

wish to foster the emergence of greater population concentrations. In various countries policies concerning population distribution are being implemented, irrespective of whether the same countries also have a policy affecting the birth rate.

346. Decreases in rates of population growth should not be expected to result rapidly upon the adoption of family planning programmes. The population projections discussed in chapter V take eventual reductions of fertility into account, but since further mortality reductions are also expected, the acceleration of population growth may not abate in many regions for another decade or two. At least fairly rapid growth must be expected for several decades more.¹⁷⁷ Thus, population policies are directed towards long-term goals. They are never regarded as substitutes for vigorous policies of economic and social development. Inevitably, it will be necessary to provide improved living conditions for ever greater numbers of human beings.

347. Acceptance of methods of fertility regulation among large populations can only be secured if the motivation of parents is genuine. The motivation may exist in wide strata but may often be blocked by conflicting psychological factors, conformism or fatalism. These obstacles will have to be cleared away so that family planning can become an integral part of the values systems of the people concerned. Much may depend on leadership, its acceptability to the people at large, and prevailing attitudes regarding the means of communication. The transition from uncontrolled fertility to fertility regulation is a complex and sensitive subject requiring continuous improvement in methods and means of family planning, always with consideration for the cultural, religious and other problems involved and for the psychological and sociological factors which affect human behaviour. The population problem may, in the long run, become the greatest challenge in the destiny of man. All relevant human experience should be mobilized for a solution.

¹⁷⁷ J. Bourgeois-Pichat and S. I. Taleb, "Un taux d'accroissement nul pour les pays en voie de développement en l'an 2000. Rêve ou réalité?", *Population* (Paris) 25, 5, Sept.-Oct. 1970.