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"Population and Development" Series No. 18

Challenge and Strategy of Asian Nations

— Population and Sustainable Development —

MARCH 1994

The Asian Population and Development Association

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FOREWORD

For some time now it has been said that the 21th century will be "the Age of Asia" or "the Age of the Pacific". Actually, however, it was only recently that the world truly began focusing on Asia and conducting intensive diplomatic and economic activities in the region. The fact that Pacific trade surpassed Atlantic trade in 1983 finally spurred the United States, a powerful country with shores on both the Atlantic and the Pacific Oceans, to shift from a merely conceptual interest in Asia to an active one. The APEC conference held in Seattle in November, 1993 at the strong urging of President Clinton was a clear manifestation of the United States' deep interest in Asia.

The existence of massive consumer markets in East and Southeast Asian countries, with their constant double-digit economic growth rates, their extraordinary success in curbing population growth rates has now made the developed countries of the world take notice of the economic potentialities and political voice of Asia.

It is by no means an exaggeration to say that the solution of the world's demographic problems and the revitalization of the world economy greatly depend on the trends in Asia.

One scholar predicted the advent of the Age of Asia and the rise of China almost half a century ago. This scholar was Owen Lattimore, a U.S. historian who spent much time in China and thoroughly observed and analyzed the country. In "China, A Short History", which was published in 1947, Lattimore clearly prophetized the coming of the Age of Asia and the rise of China in the second half of the 20th century.

In this report, we discuss Asia's new role and its contributions to world history as a "challenge". I would like to state my gratitude to all the professors who contributed their analyses to this report, and my hopes that this report will contribute to a better awareness and understanding of all the many people of Asia.

Finally, allow me to express my sincere thanks to the Japan Shipbuilding Industry Foundation (Ryoichi Sasakawa, Chairman) and the United Nations Population Fund (Executive Director, Dr. Nafis Sadik) for their immense support on the preparation of this report.

March, 1994
Fukusaburo Maeda
Chairman
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Introduction:

ASIA, THE WORLD'S MOTIVE FORCE

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1 The Geopolitics of Asia

Asia has newly entered the limelight from the international and global perspective. It was the latter half of the 1970s that we began to hear the terms "the Asian Age" and "the Asian 21st Century". However, it was only after 1983 when Pacific trade surpassed Atlantic trade that interest in Asia evolved from a simple conceptual view into a more concrete, long-range policy perspective. The most concrete manifestation of this was the APEC (Asia/Pacific Economic Cooperation) conference held in Seattle in the United States in November, 1993.

With a population of 3.23 billion (in 1992), Asia is the largest region in the world, with almost 60% of the total world population. However, it only covers an area of 27.6 million square kilometers, 20.2% of the entire world. Thus, its population density of 117 persons per square kilometer (1992) is the highest of any major world regions, and almost three times the population density of the world as a whole (40 persons per square kilometer). This high population density is one of the basic characteristics of Asia.

Asia is extremely diverse demographically as well. It includes two countries with massive populations, China at near 1.2 billion and India which will soon reach 900 million, as well as countries with small populations, such as Bhutan at 1.6 million and Singapore at 3 million. The total fertility rate ranges from over 6 in Pakistan and Afghanistan to countries where it has already been below the replacement level for some time now, such as Japan, Korea and Singapore. The average life expectancy at birth for women is scattered over a wide range, from 44 years in Afghanistan to 82 years in Japan. For the demographic transition process as well, Asia has a tiered structure including countries in the initial stage of transition with high birth and death rates, countries which have completed the transition with low birth and death rates, and countries in the middle stages of transition.

In close correlation to the stages of demographic transition, Asia includes countries at various stages of economic development. The per capita GNP of Japan which has completed demographic transition is US$ 25,430 (here and below, as of 1990, according to the 1993 UNFPA State of World Population), and US$ 11,160 in Singapore and US$ 5,400 in Korea which have nearly completed the transition, indicating a high level of economic development. However, countries such as Pakistan and Afghanistan where agriculture is predominant are still in the initial stage of demographic transition, and their per capita GNP is extremely low at US$ 380 and US$ 210, respectively. Furthermore, demographic transition is progressing rapidly in Thailand and Malaysia, whose per capita GNP is growing (US$ 1,420 and US$ 2,320, respectively). In these countries, the economy is developing in a trend away from the predominance of agriculture towards industrialization.

Economic development is particularly remarkable in East and Southeast Asia, and a number of the countries in these two regions sustained double-digit annual growth rates in the 1980s. Given the extraordinary development of the Chinese economy, the World Bank predicts that China might have the world's largest gross national product in the year 2002. It is for these circumstances that much expectations are being held in the contribution of Asia's latent capacities in the economic field for the revitalization of the world economy.

2 Demographic, Economic and Environmental Dilemmas

As we all know, in developed countries the advanced economic structures, affluent lifestyles and societies of large consumption have brought about serious problems for the environment. The problem of pollution has been partially solved through the development of new technologies. However, today there are environmental problems of global proportions which cannot be solved at the level of countries or regions within countries. These include such so-called macro-pollution problems as global warming, the destruction of the ozone layer by fluorocarbons, the acidification of lakes and the destruction of forests, and the proliferation of poisonous substances, problems directly affecting the survival of humanity.

Until now, these global environmental problems were brought on mainly by the highly industrialized developed countries with their high standards of living. On the hand, developing countries accounting for 80% of the world's population conquer poverty, will probably need to adopt the pattern of industrialization followed by developed countries in order to improve their standards of living and overcome poverty. However, if the developing countries of the "South" simply imitate the developed countries of the "North", they will contract the same diseases from which developed countries are now suffering (*1).

There is a close mutual relationship between population, development (economy) and the environment, but we should note that population is the fundamental factor. The world's population growth rate is now under 2%. If it had grown at an annual rate of 1% from 2.5 billion in 1950, it would have doubled to 5 billion in 2020. Instead, actually it reached 5 billion in 1987, 33 years faster. An annual growth rate of 1% is high, considering it is twice that of the current average of 0.5% for developed countries. Even so, if the population had grown at this rate, the 5 billion mark would have been reached 33 years later, and the current problems of the environment and resources could have been postponed to a point substantially further off in the future.

Ehrlich offers an interesting equation on the pressure exerted by population and economy (affluence) on the environment (*2). This equation is simple and easy to understand. According to it, the impact on the environment is determined by three factors:

population, the consumption of resources (affluence) and technology, in the equation I = P x A x T. In developed countries factor "P" is small but multipliers "A" and "T" are extremely high, so "I" is becoming increasingly serious. However, while the decrease in the population growth rate may somewhat reduce "I", "A x T" is excessively high. In developing countries, "A and T" are extremely low, but "P" is overwhelming. Because today the world's population is being determined by the population of developing countries, from a global viewpoint the exploding size of the world population and the pressure of its increase have the decisive influence. Ehrlich offers the following example: If we succeed in decreasing the world's per capita consumption of resources (A) by 5% and also in decreasing the impact on the environment through improvements in technology (T) by 5%, the impact on the environment would be decreased by 10% for all of humanity. However, with the population growing at the current annual rate of 1.7%, even though the pressure on the environment had been reduced by 10%, it would return to its original level in less than 10 years (*3).

Improving the living standard and increasing the quality of life is a desirable objective for any society. To do so, it is necessary to promote economic growth. The experience of developed countries fully demonstrates that economic growth tends to lead to a reduction of limited resources and a deterioration of the environment. In order to maintain a balance between economic growth, resources and the environment, it is necessary to introduce a new condition of "sustainability", into planning of economic growth by taking another consideration of future generations into it.

3 The Establishment and Significance of an Asian Model

As if in response to the term "the Asian Age", Asia is now taking up the challenge of a new critical issue for humanity -- the need to establish a new developmental model founded on Asian values. Of course, this model has not yet been given concrete form. For now it only consists of the active yet still unconsolidated and rudimentary policies and ideas seen in many Asian countries. Despite its ethnic, religious, and cultural diversity and different stages of economic development, Asia is beginning to move full-force ahead towards a common future.

The realistic objectives of this common idea are demographic transition and a low population growth rate. The "Bali Declaration" adopted at the 4th Asia-Pacific Population Conference in 1992 calls for reducing the total fertility rate to the replacement level by 2010, indicating a determination to curb population growth. Furthermore, the "Kuala Lumpur Proclamation" adopted at the 4th Conference of the Forum of Asian Parliamentarians for Population and Development" in October, 1993 in Kuala Lumpur, Malaysia also includes a

unanimous agreement on targets for curbing fertility.

We are beginning to see noteworthy results of the early achievement of demographic transition in relation to economic development, particularly in East and Southeast Asia.

Such new developmental strategies as the simultaneous, parallel achievement of demographic transition and economic growth and also the attainability of demographic transition even with low development are beginning to succeed. These can be called Asian developmental patterns. Japan, which provided the first successful example of demographic transition outside of the Western cultural sphere as well as the first experience in Asia, should cooperate on the establishment of a model for future Asian development.

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Chapter One

POPULATION GROWTH AND POPULATION STRUCTURE

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1 Asia in the World

As of 1992, Asia had a population of 3,233 million, 59% of the world population of 5,479 million. In 1950, directly after World War II, the world population was 2,516 million, with 1,377 million people or 55% of the total in Asia. Thus, soon after the war Asia already accounted for more than half of the world's population, and the Asian population has since been further increasing in both absolute number and in the share of the world population.

Not only does Asia have a vast population in numbers, this population is also extremely diverse. In United Nations statistics, Asia is divided into four regions.

The first is East Asia, whose population in 1992 was 1,387.9 million, of which China's population was 1,188 million. Japan also belongs to this region, but its population is 124.5 million, only about one tenth the population of China.

The second region is Southeast Asia, with a population of 461.5 million. The country with the largest population in this region is Indonesia, at 191.2 million. Other countries in this region include Vietnam, the Philippines and Thailand, each with a population of over 50 million.

The third region is South Asia, with a population of 1,244.3 million, India having the largest population within this region at 889.5 million. Pakistan and Bangladesh each have a population of over 100 million.

The last region is West Asia, whose population is 129.3 million. Though the population of this region is relatively low, this region includes 11 countries, so there are many countries with low populations in this region. One with a relatively large population is Turkey, with 58.4 million inhabitants.

According to U.N. statistics, the average annual growth rates for the Asian region in the 1990-1995 period will be as follows:

For Asia as a whole, the average annual growth rate will be 1.8%: 1.3% for East Asia, 1.9% for Southeast Asia, 2.2% for South Asia, and 2.7% for West Asia. While the growth rates for East and Southeast Asia are near the overall world population growth rate (1.7%), the rates are quite high in South and West Asia. One can distinguish one of the elements of the diversity in Asia through these figures.

There are also major disparities in the population growth rate within the various regions. For example, Mongolia in the East Asian region has a population growth rate of 2.6%, and in Southeast Asia the growth rate is 3.0% in Laos, 2.5% in Cambodia and 2.4% in Malaysia. Inversely, in South and West Asia, regions where the population growth rate is high, there are also countries with relatively low growth rates, such as Sri Lanka (1.3%) and India (1.9%) in the former, Lebanon and Turkey (2.0% each) in the latter.

The growth of the world population is a major issue today, but if we examine the population growth rates from 1950 until recently, the population grew at an annual rate of 1.8% from 1950 to 1955, but this rate has dropped off some to 1.7% in the 1990-1995 period. In Asia as well, the total for all of Asia has dropped, though slightly, from 1.9% to 1.8%, but there are major differences between regions. For example, the rate has dropped substantially in East Asia from 1.8% to 1.3%, has remained steady at 1.9% in Southeast Asia, has increased from 2.0% to 2.2% in South Asia, and has remained steady at 2.7% in West Asia.

According to U.N. projected future population statistics, the world population is expected to grow to 6,228 million in the year 2000, 8,472 million in 2025. In this period, the population of Asia is expected to grow to 3,692 million and 4,900 million, with the Asian share of the world population changing to 59.3% and 57.8%. Thus, the Asian population will continue to grow in the future, but at a gradually slower rate than the world population, so its share of the world population is expected to decrease. Even so, Asia will still account for over half of the world's population.

If we look at the future population forecasts for the different Asian regions, the population will grow to 1,520 million in the year 2000 and 1,762 million in 2025 in East Asia, 531 million and 715.6 million respectively in Southeast Asia, 1,469.95 million and 2,135.83 million respectively in South Asia, and 171.43 million and 286.65 million respectively in West Asia.

According to these U.N. future population statistics, if the year 1990 is taken as the standard (100), the population of Asia as a whole is expected to grow to 118 in the year 2000, 157 in 2025. In other words, it will increase 18% by the year 2000, 57% by 2025. By region, the population of East Asia will increase by 13% in the year 2000 and 31% by 2025, 20% and 61% respectively in Southeast Asia, 23% and 79% respectively in South Asia, and 30% and 117% respectively in West Asia. Thus, in the Asian region the population growth rate will be relatively high in the West, low in the East.

2 Trends in Birth Rates

The crude birth rate of the world population in the 1990-1995 period is 26.4 (per 1,000), with a major gap between developed regions as a whole (13.9) and developing regions as a whole (30.0). There is also a substantial difference in the crude birth rate among developing regions, from 43.5 in Africa to 26.8 in Latin America and 26.9 in Asia.

As a whole, the birth rate in the Asian region is quite low, but there are major differences within the region. The birth rate is 19.8 in East Asia, but 34.4 in West Asia. Within East Asia, as well, the figure is over 30 for Mongolia, but between 10 and 20 for Japan, Hong

Kong and Korea. In Southeast Asia, the birth rate runs between a maximum of 45 in Laos and a minimum of 16 in Singapore. The highest figure in South Asia is 53 in Afghanistan, the lowest 21 in Sri Lanka. Finally, in West Asia the maximum birth rate is 48 in Yemen, the minimum 21 in both Israel and the United Arab Emirates.

If we examine the past and future focusing on birth rates, there is a decreasing trend in the birth rate for the world as a whole. The world's crude birth rate was 37.5 from 1950 to 1955, will be 26.4 for the 1990-1995 period, and is projected at 17.5 for the 2020-2025 period. Thus, over this entire period the birth rate will decrease by more than 50%.

In developed countries the birth rate was already quite low, so we cannot expect a major decrease in the future. The birth rate in developing countries, however, is projected to change greatly, from 44.6 in the 1950-1955 period to 30.0 in 1990-1995 and 18.6 in 2020-2025.

In Asia, the birth rate was 42.9 in the 1950-1955 period, but dropped to 26.9 in 1990-1995, and is expected to fall to 16.1 in 2020-2025, below the levels of Africa and Latin America. The decrease is particularly pronounced in East Asia, from 40.8 in 1950-1955 to 19.8 in 1990-1995 and 12.6 in 2020-2025, about the same level as advanced countries. The next strongest drop in the birth rate will be in Southeast and South Asia, falling to under 20 in the 2020-2025 period in both regions. In West Asia, the birth rate was 47.6 in 1950-1955, and will fall to 33.5 in 1990-1995 and 22.1 in 2020-2025.

The only regions in which the birth rate will still be over 20 in this final period are Africa and West Asia. Of course, there are substantial differences within these regions.

Since the crude birth rate is affected by the age composition, it is considered inappropriate as a birth rate index. However, if we look at the total special birth rate, the results are basically the same. In other words, they also show that whereas the birth rate in Asia was high in the past, it is decreasing more rapidly than in other areas of the world, that there are regional differences within Asia, and that the birth rate in East Asia has recently become quite low and in the future will reach the current levels of developed regions.

3 Death Rates

The decrease in the death rate is more marked than the decrease in the birth rate, and there is less difference from region to region. This is because the birth rate is strongly affected by the economic, social and cultural conditions in the various regions, whereas the desire to decrease the death rate is the same in all regions, and it is simple to transfer medical and public health technology.

The crude death rate for the world population in the 1990-1995 period is 9 (per 1,000). For Asia as a whole it is 8, lower than the world total. There is also little difference in the

crude death rate between regions, with East Asia at 7, Southeast Asia at 8, South Asia at 10 and West Asia at 7.

The differences within the various regions is also small, particularly in East Asia. In Southeast Asia, however, it varies from a maximum of 15 in Laos, followed by 14 in Cambodia, to a minimum of 5 in Malaysia, followed by Singapore and Thailand at 6. In South Asia the maximum is 22 in Afghanistan, the minimum 6 in Sri Lanka, followed by Iran at 7. In West Asia it extends from a maximum of 14 in Yemen to a minimum of 2 in Kuwait.

In the 1950-1955 period, the death rate for the world as a whole was 19.7. In Asia in the same period it was 24.1. In the 1990-1995 period the overall world death rate is 9.2, with Asia at 8.4. In the 2020-2025 period, the world death rate is expected to be 7.6, whereas for Asia it is predicted to be 7.2. Thus, the death rate in Asia is expected to decrease, though with slight differences between regions.

When we examine the crude death rate there are little differences between regions, but if we look at the infant mortality rate (the rate of the number of deaths of infants under one year of age with respect to the number of births), an index thought to keenly reflect the mortality situation, there are major disparities from region to region. From 1990 to 1995, the infant mortality rate is 62 for the world as a whole, but 12 for developed regions, 69 for developing regions. In Asia as a whole it is 62, slightly below the average for developing regions.

Within Asia, there are strong differences in the infant mortality rates of the different regions, with East Asia at 26, Southeast Asia at 55, South Asia at 90, and West Asia at 54. Japan has the lowest infant mortality rate in East Asia at 5, Mongolia the highest at 60. In Southeast Asia the minimum is 8 in Singapore, the maximum 116 in Cambodia. In South Asia Sri Lanka has the lowest rate at 24, Afghanistan the highest at 162. West Asia's lowest rate is 9 in Israel, its highest rate 106 in Yemen.

4 Age Composition

The decrease in the birth and death rates inevitably brings about changes in the age composition. The age composition of the world population in 1990 was as follows: the young population (0 to 14) made up 32.3% of the total population, the population of productive age (15 to 64) 61.5%, and the aged population (65 and over) 6.2%. In developed regions these figures were 21.5%, 66.5% and 12.0%, respectively, compared to 35.5%, 60.0% and 4.5% in developing regions. The difference between developed and developing regions is clear, the former being characterized by an aging of the population, indicating the future situation in regions currently in the process of development.

For Asia as a whole, the age composition displays a pattern typical of developing regions, the young population accounting for 32.9% of the total population, the population of productive age 62.1%, and the aged population 5.0%. Within the Asian region, East Asia has an age composition somewhere between that of developed and developing regions, at 26.5%, 67.2% and 6.2%. In other words, the percentage of the young population is decreasing as a result of the drop in the birth rate, but the effects of the decrease in the death rate have not yet led to an increase in the aged population, so the population of productive age is seeing a relative increase.

For Southeast Asia the figures are 36.6%, 59.5% and 3.9%, a pattern typical of developing regions where the birth rate is high. South and West Asia both display an age composition of the developing region type, at 37.9%, 58.0% and 4.1% for the former, 40.2%, 56.2% and 3.6% for the latter. The age composition of developing regions is distinguished by an extremely high percentage of the young population and a lower percentage of the population of productive age than developed regions, despite a still low percentage of the aged population. The main cause for this is the high birth rate, but such factors as high death rates, and particularly high infant mortality rates, as well as the high number of people who die before reaching the productive age, also play a role here.

According to U.N. future population statistics, in the year 2000 the age composition for Asia as a whole is expected to be 31.1% for the young population, 63.0% for the population of productive age, and 5.9% for the aged population. Thus, there will be a change as compared to 1990, but this change will not be so great. The same is true for the age composition in the different regions.

In 2025, however, the age composition for Asia as a whole is projected at 23.1%, 67.3% and 9.6%, thus gradually nearing a developed region pattern. For East Asia in particular the population is expected to age substantially by 2025, to 18.7%, 67.8% and 13.5%.

For other regions of Asia the age composition will also change, but the extent of the aging of the population will still be low. On the contrary, the percentage of the population of productive age will grow in relative terms, creating favorable demographic conditions for economic development.

5 Economic and Social Conditions

Various economic and social conditions affect the population situation in Asia as described above. Here we will describe the most important of these conditions.

(1) Economic levels

The per capita GNP is the most generally used index for the economic level. If we examine the per capita GNP for 1990 (in US$) as shown on Table 5, we can see that in East Asia there are major differences between countries, with Japan at 25,430, Hong Kong at 11,490, South Korea at 5,400, and China at 370. Even so, we can consider the economic level in East Asia to be quite high. This undeniably affects the population dynamics of the region.

In Southeast Asia, the per capita GNP in 1990 was 11,160 for Singapore, 2,320 for Malaysia, 1,420 for Thailand, 730 for the Philippines and 570 for Indonesia. Thus, here as well there are substantial differences between countries, and overall the economic level is lower than East Asia. For South Asia, the per capita GNP was quite high in Iran at 2,490, but under 500 in other countries, so as a whole the region's economic level is not very high. In West Asia there are many countries with considerably high per capita GNPs, including the United Arab Emirates at 19,860, Israel at 10,920, and Saudi Arabia at 7,050. We can speculate that the characteristics of the population dynamics of this region are determined by its oil resources which make it economically affluent and the strong influence of Islam.

(2) Educational levels

The level of education is another important variable, but in a different way from the economic level. What to use to express the level of education is an important issue, but here we will use the percentage of the population attending middle school by sex (1986-1990).

First, in East Asia, the percentages are quite low in China at 50% for males, 38% for females. Other countries in the region, however, have a high percentage of middle school attendance at over 70% for both males and females, and this region has an extremely high level of education as compared to other Asian countries. In Southeast Asia, the rates are high in the Philippines (72% for males, 75% for females) and Singapore (68% and 71% respectively), but quite low in Myanmar (25% and 23%), Laos (31% and 22%) and Thailand (32% and 28%). In South Asia, Sri Lanka has a high level of education, with 71% of males and 76% of females attending middle school, but other countries in the region have low rates, Afghanistan at 11% for males and 5% for females, Bangladesh at 23% for males and 11% for females. Finally, in West Asia, middle school attendance varies from 50 to 90% for males and 40 to almost 90% for females, with the exception of Yemen (42% for males, 7% for females). Overall, however, we can say that education is quite widespread in West Asia.

(3) Family planning and health services

The rate of implementation of family planning no doubt has a major influence on birth rate levels. If we examine the percentage of people implementing family planning in the period from 1975 to 1991, in East Asia it is high, running from a maximum of 81% in Hong Kong to a minimum of 58% in Japan. In Southeast Asia there is substantial disparity between

countries, extending from a maximum of 74% in Singapore to a minimum of 36% in the Philippines. The disparity is also great in South Asia, between 62% in Sri Lanka and 12% in Pakistan. Overall the percentage is low in this region. The same is true in West Asia, where the percentage runs from a maximum of 63% in Turkey to a minimum of 1% in Yemen. Family planning is not only influenced by levels of economy and education, but also to a great extent by religious beliefs.

The death rate, and particularly the infant mortality rate, is greatly affected by the health service situation. The extent of use of health services is over 90% in East Asia, but in Southeast Asia varies from a maximum of 100% in Singapore to a minimum of 33% in Myanmar, a substantial difference. Even so, many countries in this region have a high usage percentage, so we can say that health services are quite widespread in this region. In South Asia the disparity is great, from a maximum of 93% in Sri Lanka to a minimum of 29% in Afghanistan, but there are more countries in this region with high rates. In West Asia as well the disparity is great, from a maximum of 100% in Kuwait to a minimum of 38% in Afghanistan, but many of the countries in this region also have high rates.

As for the percentage of births attended by health care personnel (from 1983 to 1991), most countries in East Asia have a percentage near 100%. In Southeast Asia, this percentage is 100% in Singapore and above 70% in Vietnam, Malaysia and Thailand, but 47% in Cambodia and 32% in Indonesia. In South Asia, the percentages are 94% in Sri Lanka and 70% in Iran, but very low in some countries, including Nepal (6%) and Bangladesh (5%). In West Asia, the percentage is 90% or greater in Israel, Kuwait, the United Arab Emirates and Saudi Arabia, but only 12% in Yemen. Still, overall it is high in this region.

We have now examined the general situation of population growth and population structure in Asia, as well as the economic and social conditions behind this situation.

Generally speaking, Asia is a region with a high population, and this situation will likely continue in the future, but we can say that the transition processes for the birth and death rates are changing steadily throughout the world. The demographic, economic, social and cultural situation in Asia is extremely complex and interrelated, so this is a very diverse region, but the influences of East Asia where progress is fast are gradually permeating to all of Asia.

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Table 1 World and Asian Population

(in millions)

Region	1950	1990	2000	2020	2025
World total	2,516	5,295	6,228	8,050	8,472
Developed regions	832	1,211	1,278	1,387	1,403
Developing regions	1,684	4,084	4,950	6,663	7,069
Asia	1,377	3,118	3,692	4,689	4,900
East Asia	671	1,350	1,520	1,726	1,762
Southeast Asia	182	444	531	683	716
South Asia	481	1,191	1,469	2,017	2,136
West Asia	42	132	171	263	287

Source: (1)

Table 2 World and Asian Crude Birth Rate

Region	1950-55	1990-95	2000-25
World total	37.5	26.4	17.5
Developed regions	22.6	13.9	11.9
Developing regions	44.6	30.0	18.6
Asia	42.9	26.0	16.1
East Asia	40.8	19.8	12.6
Southeast Asia	44.1	27.5	16.7
South Asia	44.9	33.5	18.0
West Asia	47.6	34.4	22.1

Source: (1)

Table 3 World and Asian Crude Death Rate

Region	1950-55	1990-95	2000-25
World total	19.7	9.2	7.6
Developed regions	10.1	9.6	10.6
Developing regions	24.3	9.1	7.1
Asia	24.1	8.4	7.2
East Asia	23.3	6.6	8.4
Southeast Asia	24.4	8.1	6.8
South Asia	25.1	10.6	6.7
West Asia	23.4	7.4	5.1

Source: (1)

Table 4 World and Asian Age Composition (%)

Region	0-14	15-64	65+
		(1990)	
World total	32.3	61.5	6.2
Developed regions	21.5	66.5	12.0
Developing regions	35.5	60.0	4.5
Asia	32.9	62.1	5.0
East Asia	26.5	67.2	6.2
Southeast Asia	36.6	59.5	3.9
South Asia	37.9	58.0	4.1
West Asia	40.2	56.2	3.6
		(2000)	
World total	31.1	62.1	6.8
Developed regions	20.4	66.1	13.5
Developing regions	33.8	61.1	5.1
Asia	31.1	63.0	5.9
East Asia	25.4	67.0	7.6
Southeast Asia	32.9	62.3	4.7
South Asia	35.6	59.8	4.7
West Asia	38.7	57.1	4.2
		(2025)	
World total	24.9	65.3	9.7
Developed regions	18.2	63.5	18.3
Developing regions	26.3	65.7	8.0
Asia	23.1	67.3	9.6
East Asia	18.7	67.8	13.5
Southeast Asia	23.6	68.2	8.2
South Asia	25.4	67.2	7.3
West Asia	30.8	63.2	6.1

Source: (1)

Table 5 Asian Economy and Society

(1990)

Region	Per capita GNP ($)	School attendance (%) Male/Female	Family planning implementation (%)	Births attended by health care personnel (%)
East Asia				
China	370	50/38	72	94
Hong Kong	11,490	71/75	81	100
Japan	25,430	94/97	58	100
Mongolia	--	88/96	--	99
Korea	5,400	88/85	77	89
Southeast Asia				
Cambodia	--	45/20	--	47
Indonesia	570	52/43	50	32
Laos	200	31/22	--	--
Malaysia	2,320	58/59	51	82
Myanmar	--	25/23	--	57
Philippines	730	72/75	36	55
Singapore	11,160	68/71	74	100
Thailand	1,420	32/28	66	71
Vietnam	--	43/40	53	95
South Asia				
Afghanistan	--	11/5	--	9
Bangladesh	210	23/11	40	5
India	350	54/31	43	33
Iran	2,490	62/44	--	70
Nepal	170	42/17	14	6
Pakistan	380	28/12	12	40
Sri Lanka	470	71/76	62	94
West Asia				
Israel	10,920	79/86	--	99
Kuwait	--	93/87	35	99
Saudi Arabia	7,050	53/39	--	90
Turkey	1,630	63/39	63	77
United Arab Emirates	19,860	60/69	--	99
Yemen	--	42/7	1	12

Source: (2)

NOTE: "School attendance" refers to the percentage of the population attending middle school.

Chapter Two

POPULATION DISTRIBUTION AND MIGRATION

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1 Introduction

The total fertility rate of women in Asia declined to such fairly low level as 3.2 in the 1990-1995 period as projected by United Nations (the same applies below unless otherwise specified), and in several countries in Asia it has reached the replacement level. Accordingly migration, both internal and international, is taking on greater importance among population issues than ever in the region. The number of international migrants which was over 2 million per year in the 1980s is still small considering the total population of Asia in 1990 of 3.1 billion, but the issue has emerged as a serious one due to the repercussions on society (Skeldon, 1992, CPP/IPP, 1993). Therefore, the ESCAP and other organizations have held a number of important meetings on migration in preparation for the International Conference on Population and Development, 1994 (ESCAP Secretariat, 1992). In addition, due to the rising significance of internal and international migration in the world as a whole and particularly in developing countries, the issue was featured in the State of World Population 1993 (UNFPA, 1993). At the International Population Conference 1993 by the International Union for the Scientific Study of Polpulation (IUSSP) as well, six sessions were directly related to migration and population distribution because of their great concern. In this chapter we will discuss internal and international migration in Asia, with particular focus on the latter.

2 Urbanization and Internal Migration

(1) Level of urbanization

According to the United Nations estimates, the percentage of the population living in urban areas in Asia was estimated at 34.4% in 1990 (Table 1) (United Nations, 1991). This is of course low compared to the figures of 45.2% for the world as a whole and 72.6% for developed regions. It is also lower than the figure of 37.1% for developing regions as a whole, approximately the same as Africa (33.9%), and extremely low as compared with Latin America (71.5%).

Asia includes both small countries and regions where urbanization is virtually completed, such as Singapore (94.1%), Macao (98.7%) and Hong Kong (94.1%) on the one hand, and countries in which the share of the urban population is extremely low (about 20% or less), such as Bhutan (5.3%), Nepal (9.6%), Cambodia (11.6%), Bangladesh (16.4%), Laos (18.6%), Afghanistan (18.2%), Vietnam (16.4%) and Thailand (22.6%) on the other.

Though overall the share of the urban population in Asia is still low, it is expected to increase rapidly in the future, reaching 42.7% in 2000 and 59.5% in 2025, at which time there

will be a reversal between the shares of the urban and rural populations. This reversal is expected to take place by 2010 for the world as a whole, and by 2015 for developing regions as a whole.

(2) Urban and rural population growth rates

In the 1985-1990 period, the average annual growth rate of the urban population was 5.0% in Asia, quite high as compared to 2.9% in Latin America. Further it will increase at a rapid rate in the future because of the low percentage of the population living in urban areas in Asia.

The growth rate of the urban population in individual countries in Asia is high also because the population growth rate of the country as a whole is high. Whereas the population growth rate in Asia is expected to be 1.8% in the 1990-1995 period, the urban population is expected to grow at a rate of 3.5% in the same period. Africa's population growth rate is even higher at 2.9%, and its urban population growth rate is still higher at 4.6% in that period. Though, the share of the urban population has already reached 65% in the West Asia sub-region, West Asia has the highest urban population growth rate in Asia at 4.2% presumably because of its highest overall population growth rate among Asian sub-regions at 2.7% (UNFPA, 1993).

Asia's urban population growth rate is expected to gradually decrease in the future, reaching a level of 2.0% in the 2020-2025 period.

As for the percentage of the population living in rural areas, in 1990 it was 62.9% in developing regions as a whole and slightly higher at 65.6% in Asia. Thus, about two of every three Asians live in rural areas. The annual population growth rate for rural areas in the 1985-1990 period was low at 0.8% in developing regions as a whole and 0.6% in Asia, and is expected to fall below zero by 2015 in developing regions and 2005 in Asia. The negative growth of the rural population is apparently caused by a decline in the fertility in rural areas and large migration from rural to urban areas.

(3) Rate of urbanization

The rate of growth of the share of the urban population is called the rate of urbanization. This is equal to the growth rate of the overall population minus the growth rate of the urban population. The rate of urbanization is brought about by the gap between the population growth rate of urban and rural areas. It consists of two elements: the difference in the birth rates between urban and rural areas, and the net migration rate in urban areas. The decline in the rural fertility decreases the first of these elements. In the 1985-1990 period, the average annual rate of urbanization was 2.4% in developing regions and 3.1% in Asia, highest among the world's major regions. The rate of urbanization is particularly high in East Asia at 4.7%,

due to the high rate of urbanization in China.

However, the rate of urbanization in Asia will also gradually decrease, dropping to 1.1% in the 2020-2025 period.

(4) Large urban agglomerations

Rapid increases in the urban population in countries where the share of the urban population is low tend to give rise to large urban agglomerations. In 1990, there were 125 cities with populations over 1 million in developing regions, and this number is expected to increase to above 300 by 2000. Though, as already mentioned, the share of the urban population in Asia in 1990 was only 34.4%, Asia includes five of the world's top 10 large urban agglomerations (Tokyo, Shanghai, Calcutta, Bombay and Seoul) and 11 of the top 20 (the above cities plus Beijing, Tianjin, Jakarta, Delhi, Osaka and Manila). These top 20 large urban agglomerations incidentally have populations of 8 million or over which are defined as mega-cities. Whereas in 1970 there were five mega-cities each in developed and developing regions, their numbers are increasing remarkably in developing regions, resulting in each regions 6 and 14 in 1990 and 6 and 22 in 2000. The emergence of mega-cities in developing regions is evidently derived from the high national population growth rates and the rapid growth rates of the urban population with little urban bases in these regions.

The formation of mega-cities also leads to the concentration of the urban population in capital cities. In 1990, the population of the capital accounted for over half the total urban population in Thailand (Bangkok), approximately one third in Korea (Seoul), Bangladesh (Dhaka) and the Philippines (Manila), and about 20% in Indonesia (Jakarta), Pakistan (Karachi), Turkey (Istanbul) and Iran (Teheran). However, in 2000 these percentages are expected to have decreased somewhat due to the growth of other urban agglomerations in individual countries, with the exception of Bangladesh.

(5) Urban population growth and internal migration

Though it is difficult to obtain statistics on the components of the increase of the urban population, given the natural growth of the urban population, we can infer the urban population growth by migration which is the remaining portion of the urban population growth. Thus, if we assume that the natural growth rate of the urban population is the same as the growth rate of the national population, we can calculate the urban population growth caused by migration between rural and urban areas (Table 2). Though this method of estimating the urban population growth by migration may seem too rough, it is often used in developing countries (ESCAP, 1992).

In the 1980-1990 period the urban population of the world as a whole grew from 1.76 billion to 2.39 billion. Of the increase of 640 million, 330 million was due to the natural

growth of the urban population and 300 million to migration according to our calculations. In other words, 47.5% of this growth is due to migration. This percentage of growth due to migration may be somewhat too high since the natural growth rate of the urban population is assumingly higher than the growth rate of the national population because of its younger age composition though the age-specific birth rate of the urban population is lower than that of rural areas. The percentage share of the growth by migration is calculated not to change greatly in the future -- 45.8% for the 1990-2000 period, 50.0% for the 2000-2025 period. The percentages for these three periods are slightly higher than for the world as a whole in developing regions at 59.9%, 54.2% and 54.2%, respectively, and even higher for Asia at 64.3%, 60.8% and 61.5%. These results demonstrate that migration flow to urban areas is larger than in other major regions in Asia, where the share of the rural population is still large, as mentioned earlier.

(6) Attributes of migrants

Of the many attributes of migrants, here we will discuss gender in order to examine the relationship between migration and women, which has become one of the central issues of recent policies on population and development. It is difficult to deduce gender-specific migration flow between urban and rural areas in many countries in the world because there are few statistics for individual countries showing the gender-specific urban and rural populations. Even U.N. statistics do not divide the urban and rural populations by gender.

It was reported that in pre-war Japan there were more males than females among the immigrant population in the process of urbanization brought about by the industrial revolution. In 1935, the sex ratio (the number of males per 100 females) was 115.4 for the immigrant population in Tokyo, which accounted for 55% of Tokyo's total population of 5,849,000 million (Tachi, 1961). In the post-war period as well, the sex ratio of the annual inter-prefectural migrants, which consists mainly of migrants to large cities such as Tokyo and Osaka, has almost consistently exceeded 120.

This phenomenon indicates that many of the migrants from rural to urban areas are second and third sons leaving their families, influenced by the tradition of the stem family system. This predominance of males among the migrants is not the case in developing countries in recent years; there is a feminization of the migrants in these countries on the contrary.

For example, in Korea, the sex ratio of the migrants in 1989 was 91.6, lower than the sex ratio for the entire population (100.4). In particular, the sex ratio of the migrants leaving rural areas was 86.9 and women accounted for a greater percentage of them than of the migrants leaving urban areas (whose sex ratio was 94.5) (Chung, 1991).

In Thailand, the sex ratio of those migrating to Bangkok in the 1975-1980 period was a

low 87, and less than 70 among people aged 10 to 19 (Pejaranonda et al., 1984). In recent years, the percentage of women among those migrating to Bangkok has been growing year by year (Bilsborrow and Zlotnik, 1992).

In China, the sex ratio of the 154,520,000 people who moved from rural areas ("Xiàn") to urban areas ("Shì" and "Zhèn") in the 1982-1987 period was low at 79.1, showing that there were more female migrants (Hayase, 1991).

This feminization of the internal migrants of Asian countries is a reflection of the labor force demand in cities, which often comes with low salaries and harsh working conditions taking advantage of the subordinate status of women. Women experiencing migration are obliged to adapt to the changes in living conditions brought about by migration and are exposed to the risk of losing their jobs due to the undesired pregnancy and birth (UNFPA, 1993).

(7) Urbanization, internal migration and policy measures

Urbanization is prerequisite to the industrialization of a country and an essential element of societal development, but the rapid concentration of the population in cities gives rise to many problems. It is necessary not only to take measures to deal with this, such as developing infrastructure, but also and more fundamentally to develop urban and rural areas in such a way as to ease migration itself. In particular, now that women make up the majority of migrants, measures to improve the economic ability and status of women must be given special notice (UNFPA, 1993).

3 International Migration

(1) Emigrants from Asia

Asia became a major sending region of permanent emigrants since the 1970s, when Indochinese refugees swelled and restrictions to immigration were abolished. The United States, Canada and Australia, countries which have traditionally accepted permanent immigrants, received 4,056,000 immigrants between 1986 and 1989, of which 1,494,000 were Asian. Asian immigrants accounted for the largest share of total accepted immigrants, 37.5%, 39.6% and 29.8% for the respective countries (OECD, 1991). More than half of the Asian immigrants falled in the family reunion category. Such strong family ties and chain migration may result a snow-balling increase of immigrants (Hugo, 1990).

Contrary to what might be expected, the incidence of permanent emigrants are not necessarily highest in the poorest countries. For example, the rate of emigration from Singapore to the United States, Canada and Australia is 5.4 per 1000 inhabitants, almost as

high as the rate for the Philippines (5.6) in 1983-1988, even though Singapore has the second highest standard of living in Asia after Japan and its annual per capita GNP is four times that of the Philippines (Sullivan and Gunasekaran, 1989).

A new phenomenon which has appeared in the 1990s is the return migration of permanent emigrants and their descendant to their original homelands with the economic development of several Asian countries. With the economic recession and the upsurge of unemployment in Australia, growing numbers of Malaysians and Singaporeans with permanent resident status in Australia is returning to their homelands. Rapidly expanding number of descendants of immigrants of Japanese origin to South America are entering Japan with the economic depression in Brazil and Peru since it became possible for them to work in Japan with permanent resident status after the revision of Immigration Act in 1990. Also, returning emigrants are reported to be increasing in Korea, Taiwan, Hong Kong and Thailand.

(2) Temporary labor migration

In addition to permanent migration, there is another type of migration -- temporary labor migration both legal and illegal, in numbers far more than permanent migration. For example, in the Philippines, which may be the world's largest labor sending country, in the 1985-1990 period the number of permanent emigrants was approximately 300,000, 0.5% of the total population, whereas the number of temporary labor emigrants was about 8 times higher at approximately 2.9 million or 4% of the total population (ILO, 1991).

Previously, the most important destination of temporary labor emigrants from Asia was the Middle East. In 1985, of the 5.1 million temporary foreign workers in the six Gulf Cooperation Council States, 43% were estimated to be from South Asia, and 20% from Southeast Asia (Russell, 1990). The annual incoming workers from Asia reached a peak of 950,000 in 1983, then stabilized at 750,000 in the second half of the 1980s, and the Gulf War drove 500,000 Asian workers back home from Iraq and Kuwait.

The destination of Asian workers has shifted from the Middle East to Japan and the four Asian NIEs (Korea, Taiwan, Hong Kong and Singapore). Malaysia and Brunei Darussalam are also important labor receiving countries.

Japan has maintained a policy of not accepting unskilled workers, so that in 1990 only 95,000 foreigners entered Japan for work purposes, and only 68,000 foreigners were staying in Japan for work visa at the end of 1990. On the other hand, as many as 110,000 foreigners of Japanese descent were residing to work in Japan in 1991. Furthermore, it was estimated by Ministry of Justice using the entry and exit records that there were 299,000 foreign over-stayers illegally working in Japan in May, 1993.

Korea once had a government policy of sending out workers, but has now become a labor receiving country. According to Korean government statistics, there are 70,000 illegal

foreign workers in the country in recent years.

Hong Kong is sending out many emigrants with its approaching return to China in 1997, but at the same time is drawing in many workers. Recently there have been some 27,000 people entering illegally from China per year, and the number of workers who entered Hong Kong legally in 1990 was about 100,000.

In Taiwan there are a large number of unskilled workers coming not only from Malaysia and other Southeast Asian countries, but also from India, Pakistan and Sri Lanka. The number of illegal foreign workers in Taiwan was estimated at 90,000 at the time when a law prohibiting foreign workers took effect in March, 1991.

With the increasing gap in the level of development and the stronger inter-dependence among ASEAN countries, the number of legal and illegal migrants within ASEAN countries is increasing. Of the six ASEAN countries, Singapore, Malaysia and Brunei Darussalam have surplus influxes.

The number of foreign workers in Singapore was 14,000 or 2% of the labor population in 1970, but had increased to 150,000 or 11.5% of the labor population in 1991. Singapore has now come to offer permanent resident status to foreigners fulfilling specific criteria, in particular to Hong Kong Chinese.

Malaysia accepts more foreign workers than any other ASEAN country. From 1980 to 1990, 256,000 foreigners received work permits in Malaysia. In 1991, there were 134,000 skilled and unskilled foreign workers in the country. In the amnesty period over the first six months of 1992, 320,000 illegal workers, mostly Indonesian and Filipinos, were registered, though there are suspected to be still more other illegal foreign workers in the country.

Thailand is a labor sending country, where there are reportedly 100,000 illegal foreign workers from Laos in the north and northeast and 20,000 from Myanmar as well (Huguet, 1991).

In South Asian countries there is evidently still more migration among its sub-region compared with other Asian sub-regions.

(3) The feminization of temporary labor emigrants

As for the attributes of temporary labor emigrants from Asia, feminization is conspicuous in the Philippines, Indonesia, Thailand and Sri Lanka (Lim, 1989). Under this phenomenon is seemingly the tendency to exploit the "comparative advantage of women's disadvantages", as is the case for internal migration.

In Japan, until 1984 men accounted for the majority of registered foreigners from Asia, however women have been the majority since 1986, and the sex ratio has been decreasing yearly, from 102.3 in 1984 to 98.9 in 1986, 98.2 in 1988 and 94.1 in 1990. This may partly reflect the aging of the Koreans and Taiwanese living in Japan as a result of World War II, but

the share of these people and their descendants among registered foreigners in Japan has already fallen to about 50%. In contrast, the sex ratio of registered foreigners of non-Asian nationalities in Japan in 1990 was remarkably high at 149.3. In addition, the sex ratio of the 101,000 Japanese residing with long-term visa in other Asian countries according to the registration at Japanese embassies in each country was 151.2 in October, 1992. The high sex ratio means that far more male Japanese are staying in these countries than female.

Some women are moving as so-called "mail-order brides" from the Philippines, Thailand and Sri Lanka to Europe, Australia, New Zealand and Japan (Lim, 1993). In 1992, 25,862 marriages in Japan were between Japanese and foreigners, and 75% of these were cases in which the husband was Japanese, and the wife foreigner. Of the foreign wives, the most numerous were of Filipino nationality at 29.7%, followed by Korean (28.5%) and Chinese (23.9%). These three nationalities account for 82% of all foreign wives. Apparently not all of these women were mail-order brides arranged through agents. However, for example in Yamagata Prefecture, a rural prefecture in which the traditional stem family system is most strongly maintained in Japan and which has been suffering a shortage of brides, the percentage of men married to foreign wives was 0.17% in 1985, but jumped to 2.7% in 1990. By contrast, this figure was 0.4% in 1985 and 0.7% in 1990 in the Kyushu region, which includes many rural prefectures in which the stem family system is very weak (IPP, 1991). It is well known in Japan that local governments in Yamagata and other prefectures have taken measures to arrange matches with foreign brides for single male inhabitants.

(4) Factors affecting international migration

The birth rate in Asia as a whole began falling in the second half of the 1960s and population growth is still high today. Hence the growth rate of the labor force will continue to be high for some time, and rapidly growing number of people are seeking work in Asian countries, which are relatively poor compared with the rest of the world. On the other hand there are developed countries whose birth rates are under the replacement level and which are suffering from labor force shortages. This discrepancy between countries creates a latent potential for international migration. However, the differences in the demographic situations among Asian countries is more important than the demographic contrasts between Asia and developed countries. There are major differences in the stage of demographic transition and in the current and future labor supply potentials among Asian countries.

Malaysia, the Philippines, Indonesia and all South Asian countries with the exception of Sri Lanka experienced large labor population growth rates of over 2% per year from 1980 to 1990. In contrast, the growth rate of the labor force is already below 1% in Japan and, by 2000 it will fall below 1% in Singapore and below 2% in Korea, Taiwan, China and Thailand

(Hugo, 1990). Furthermore, the labor force is aging in Japan and the NIEs.

East Asia and several Southeast Asian countries have experienced a rapid demographic transition and rapid economic growth. South Asian countries, on the other hand, account for almost half of the world's poor, and their economic growth is quite low. This gap in economic growth affects the pressure for migration, but the major factor accelerating labor force migration in Asia is the shifting pattern of investments and trade in the region (Lim, 1993).

Japan first shifted its labor-intensive industries to Korea and Taiwan, but as these countries experienced high economic growth through investments from abroad, they began investing capital in countries with an abundance of labor force. Through this process, direct investments by Japan and the Asian NIEs in other Asian countries have come to increase rapidly. Japan is the largest investor in Indonesia, Malaysia and Thailand, and the second largest in Singapore and the Philippines. Taiwan is the largest investor in the Philippines, and invests more in Thailand than the U.S. (Abella, 1990).

China officially authorized foreign investments in 1978. Hong Kong corporations have shifted production to Chinese special economic zones, and now employ 2 million workers in southern China. Singaporean firms have also shifted labor-intensive factories to Malaysia with governmental assistance.

However, such investments have not been very effective in decreasing the flow of labor force from sending countries and the influx of labor force in receiving countries. Growing number of people from Malaysia and Thailand are migrating to Japan and Taiwan to work illegally. Rather direct investments possibly have the effect of triggering not only internal migration but also international migration. Therefore these direct investments give rise to increased flow in the international labor market (Sassen, 1988).

(5) Policies concerning international migration

Though the Japanese government places no restrictions on the activities of foreign nationals of Japanese origin, it does not allow other foreigners to enter the country for unskilled work, and this policy will not be changed in the future. Singapore is also cautious about the influx of labor force in general. Thus, temporary labor migrants are not likely to increase unrestrictedly in Asia.

On the other hand, countries which have just begun the process of demographic transition lack the economic capacity to absorb the rapidly rising labor force, and are facing a deterioration of the standard of living. Labor force migration is triggered by three factors: the differences in demographic situations, disparities in levels of economic development and the formation of networks.

The fundamental way to deal with international migration is to promote economic development in labor sending countries through aid, investments and trade. It is necessary to

evaluate the effects on migration of various policies, and to take the measures required for tackling with the problems caused by migration, in particular with those faced by migrants (UNFPA, 1993).

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Table 1 Percentage of Population Living in Urban Areas by Major Region: 1950 to 2025

(%)

Region	1950	1960	1970	1980	1990	2000	2010	2020	2025
World total	29.2	34.2	36.6	39.5	45.2	51.1	56.5	62.0	64.6
More developed regions	53.8	60.5	66.6	70.3	72.6	74.9	77.9	81.1	82.5
Less developed regions	17.0	22.1	24.7	28.9	37.1	45.1	51.8	58.2	61.2
Africa	14.5	18.3	22.9	27.8	33.9	40.7	47.4	53.9	57.1
Latin America	41.5	49.3	57.3	65.0	71.5	76.4	79.9	82.9	84.2
Northern America	63.9	69.9	73.8	73.9	75.2	77.3	80.2	83.4	84.7
Asia	16.4	21.5	22.9	26.3	34.4	42.7	49.7	56.4	59.5
Eastern Asia	16.8	25.0	24.7	27.4	39.4	51.4	59.2	65.2	67.9
Southeastern Asia	14.8	17.6	20.2	24.0	29.9	36.9	44.4	51.9	55.4
Southern Asia	16.0	17.3	19.5	23.1	27.3	32.8	39.9	47.7	51.5
Western Asia	23.9	32.9	43.2	51.5	62.7	70.3	74.9	78.2	79.8
Europe	56.5	61.1	66.7	70.4	73.4	76.7	80.1	83.1	84.4
Oceania	61.3	66.3	70.7	71.2	70.6	71.3	73.3	75.9	77.2
Soviet Union	39.3	48.8	56.7	63.0	65.8	67.5	71.2	75.8	77.8

Source: United Nations, *World Population Prospects: 1990*, 1991.

Table 2 Urban Population Growth by Migration and Reclassification

(millions)

	1980	1990	2000	2025
World total				
Total population	4,447	5,292	6,261	8,504
Urban population	1,757	2,392	3,199	5,494
Urban population growth		635	807	2,294
Increase by migration and reclassification		302	369	1,148
Percentage of increase by m. and r.		47.5	45.8	50.0
Less developed regions				
Total population	3,310	4,086	4,997	7,150
Urban population	957	1,516	2,254	4,376
Urban population growth		559	738	2,122
Increase by migration and reclassification		335	400	1,151
Percentage of increase by m. and r.		59.9	54.2	54.2
Asia				
Total population	2,584	3,118	3,692	4,900
Urban population	680	1,073	1,576	2,916
Urban population growth		393	504	1,339
Increase by migration and reclassification		253	306	823
Percentage of increase by m. and r.		64.3	60.8	61.5

Estimated by assuming that the urban population has the same rate of natural increase as the regional population. Increase by migration and reclassification of urban population is calculated as a residual.

Source: *United Nations, World Population Prospects: 1990*, 1991.

Table 3 Permanent Immigrants in Traditional Immigrant-accepting Countries and Their Percentage from Asia among Sending Regions in Each Country

Accepting country	1956 - 60	1961 - 65	1966 - 70	1971 - 75	1976 - 80	1981 - 85	1986 - 89
(thousands)							
United States	1,427.8	1,450.3	1,871.4	1,936.3	2,557.0	2,864.4	2,937.2
Canada	782.9	498.8	910.8	834.5	605.9	427.2	605.1
Australia	--	594.2	807.0	494.7	402.7	449.9	513.9
New Zealand	115.9	170.3	159.1	139.1	60.8	54.8	--
Percentage from Asia among sending regions							
United States	7.8	7.8	17.8	31.6	40.0	48.0	37.5
Canada	2.7	6.2	12.6	24.8	38.3	41.0	39.6
Australia	--	4.0	8.3	15.6	32.2	--	29.8
New Zealand	3.1	2.8	3.3	3.1	10.9	--	--

Source: United Nations, *World Population Trends and Policies: Monitoring Report*, 1985 and 1989.
For 1986-1989, OECD, *SOPEMI 1990*, 1991.

Chapter Three

WOMEN'S STATUS AND POPULATION ISSUES

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1. Introduction

The 1980s witnessed a major change in international climate concerning population issues, particularly among the people at the United Nations and other specialized agencies, and demographers and those in charge of population-related activities in the different countries of the world. This change is reflected in the emergence of the idea and stance that the expansion of the role of women in demographic issues is extremely important for present day population issues and related activities.

Even before the 1980s there were those who advocated the need for improving the status of women and expanding the role of women, but in most cases this was from a moral or human rights standpoint, that is, the assertion that in many societies women are discriminated against and abused. There was little perception that improving the status of women and expanding their social role would be major breakthroughs in providing a solution to the world's population issues. In the 1980s, however, a new way of thinking arose. According to this approach, the high fertility rates in developing countries are due not only to such factors as the economic value of children being high as productive assets and the means to secure the well-being in their future old age, nor to the fact that many couples have no knowledge of contraception. It became clear that these high fertility rates are also due to the strict and rigid hierarchy of families and due to the fact that the status of women, particularly daughters-in-law, is extremely low in some less developed regions. The outside world became aware that within the immediate and surrounding family society, the only way by which young married wives can achieve the full-fledged status as membership of the family, or even half of that, is by bearing many children, and particularly many male children.

The status of young married wives is particularly low on the Indian sub-continent and in Africa, where the male chauvinism and disrimination against women are beyond our imagination. In the East African area the vicious practice of circumcision of women's genitals or the removal of the clitoris still exists today. This shows that women are treated exactly as sex slaves for men. Furthermore, it is said that even today women must have the permission of their husbands to conduct family planning, and it often happens that the wife is flogged if the husband finds out she is secretly using contraceptives. When we visited a rural village in Ghana in October, 1993, our impression was that the status of women is extremely low, that women are treated as childbearing slaves, and that they meekly obey the will of the heads of family, the husbands, the men. Dr. Nafis Sadik, Secretary-General of the United Nations Population Fund, who is from Pakistan, is fully aware of this situation, and is carrying out vigorous campaigns stating that weakening the system by which women are forced to bear more children even if they themselves do not want is an important step in

curbing and decreasing the fertility rate.

With this new awareness of population issues, whereas the issue of improving the status of women was not previously considered all that important, a special chapter was consecrated to women's issues in the revised version of the "World Population Plan of Action" adopted at the United Nations International Population Conference held in 1984 in Mexico City ("Recommendations for Further Implementation", Chapter 2) (*1). This evokes the importance of having women participate in all aspects of developmental plans and of incorporating the expansion of the role of women in goals for development. Furthermore, at the "Expert Meeting on Population and Women" held in Gaborone, capital of Botswana, in preparation for the forthcoming third U.N. International Conference on Population and Development scheduled to be held in Cairo in 1994 (*2), the relationships between the issues of women and population was extensively debated.

The International Union for the Scientific Study of Population, the only world-wide professional organization of population scientists, established a committee on women and the issues of population in 1985 which conducts research in this area. In 1989 the Population and Gender committee was set up to take on a new area of research. On the other hand, according to Makoto Atoh, Director-General of the Institute of Population Problems, the Ministry of Health and Welfare at the second meeting of the preparatory committee for the 1994 International Conference on Population and Development held at U.N. Headquarters in New York in May 1995, the new population plan of action would definitely call for maximum guarantees of women's reproductive rights, that is the right for women, the main actors in bearing children, to determine the number of children they give birth to and the interval between births (*3). Furthermore, Atoh also reported that until now women were forced to give birth to children in rapid succession regardless of their health and therefore often suffered from ill-health due to pregnancy-related diseases, and that because of the short interval between births their babies were often premature or underweight at birth, thus leading to high infant mortality. Because of this, reproductive health, that is the health of mothers and their babies, will likely be stressed in the new population plan of action.

The issues of women and population are multifold. The following shows the basic framework presented by the United Nations Population Division for the above mentioned "Expert Meeting on Population and Women" in Gaborone. This also suggests a framework for research on population and women.

The United Nations' Framework on Population and Women

A. Changes in the issues on population and women by the U.N.
B. Autonomy and equality of women
C. Health and mortality and morbidity
   1. General mortality
   2. Maternal mortality and health
   3. Children's health and mortality
   4. Abortion
   5. Contraception
   6. Circumcision of women's genitals
   7. Venereal disease
   8. AIDS
D. Fertility and family planning
   1. Levels and trends in fertility
   2. Women's education and fertility
   3. Women's education as factors affecting fertility
E. Employment and labour participation
   1. Gender differences in labour participation
   2. Employment of women and fertility
   3. Employment of women, children's health and family well-being
G. Women and environmental issues
   1. Population growth and the environment
   2. Women as environmental protectors
   3. Environmental issues in developed countries

As we cannot discuss all of the above topics in our limited space, here we will focus on two issues:

(1) Life expectancies of women as an indication of women's health
(2) The relationship between women's status and fertility in both developing and developed countries

2. Women's Health and Life Expectancy

Life expectancy is a well-known index which succinctly expresses the general level of living and life chances of each individual nations and social groups. In a sense it is even considered a more appropriate indicator of a country's living conditions and quality of life than the average per capita income. Table 1 shows the average life expectancies of men and women in different regions and countries of the world at 1985 to 1990 levels based on 1992 United Nations statistics.

As we can see in Table 1, the difference in the average life expectancies of men and women is large in developed countries and small in developing countries -- 7.1 years for developed regions overall, but only 2.5 years for developing regions.

Fundamentally it is natural for women's life expectancies to be longer than men's. We will not go into a detailed discussion of the reasons for this here, but generally speaking this is due to inherent, that is biological factors, and acquired factors, namely the differences in the living environment and lifestyles of men and women. The latter includes occupational hazards particular to men and such habits as the intake of tobacco smoke and alcohol. This difference can also be thought of as due to women's almost instinctive consideration of and attention to their bodies, to their health and figure.

We can suppose that originally women tend to have the biological potential to live considerably longer than men. It seems justifiable to say that the fact that despite this the life expectancies of men and women are very close in developing regions, and in particular in India and Pakistan on the Indian sub-continent, where in fact men previously lived longer than women, is due to various negative factors in the living environment of women in this region (*5). Some of these negative factors are that women give birth to many children in these countries and that the interval between births is very short, as mentioned above. Other factors we could mention are the poorer conditions for preserving health in such aspects as food, sleep, nutrition, rest and access to medical treatment as compared to men, and the fewer opportunities for women in these areas. Very roughly speaking it might be the case that the lower the degree of development and the poorer the country, the more women are discriminated against, abused and constrained.

3. Average Lifespan of Men and Women on the Indian Sub-continent

It is generally thought that the longer life expectancy of women is due to the different

biological conditions of men and women and their different living environments and life styles. As already mentioned, however, the difference in the average life expectancies of men and women is small in developing countries, and particularly low in the countries on the Indian Sub-continent, where in some cases it is virtually nonexistent or even negative, that is women's life expectancy is shorter than men's. Table 2 shows the average lifespans of men and women in the countries on the Indian Sub-continent over the past 40 years.

As we can see in this table, in the 1950-55 period the average life expectancies were longer for men than for women in all countries but Afghanistan. Even in the 1970-75 period women's life expectancies were quite shorter than men's in Bangladesh, India, Nepal and Pakistan. In the 1985-90 period, women's life expectancies finally surpassed men's in India, but remained shorter in Bangladesh and Nepal.

Some reasons for which the average life expectancy of women is relatively short on the Indian Sub-continent are that in these countries women give birth to many children and maternal mortality is high because of the poor hygienic conditions and low levels of nutrition. Another reason given for this is the strong traditional predominance of men over women, resulting in poorer access to medical treatment for women as compared to men and women being given less satisfactory food than men (*6).

Incidentally, one reason given for the fact that the fertility rate continues to be high on the Indian Sub-continent is that in the immediate and surrounding family society the status of women, and in particular young married wives, is extremely low, and that because of this young wives can only a full-fledged status of membership within the family if they give birth to many children, and in particular male children.

4. Differentials in the Mortality Rates in Japan

Interestingly, before World War II the difference in the average life expectancies in Japan between men and women was only about 2 years, compared to 6.0 years today (as of 1991, the average life expectancy is 76.11 years for men, 82.11 years for women). This is very similar to the situation in developing regions today, and points to the appropriateness of the mortality transition theory as a part of the trend in demographic transition.

According to the life tables for 1909-13, the average life expectancy was 44.25 years for males, 44.73 years for females, for a difference of only 0.48 years. The life tables for 1926-30 put the average life expectancy at 44.82 years for males and 46.54 years for females, a difference of 1.72 years. Of course, one of the reasons for this is the prevalence of high maternal mortality due to the fact that women gave birth to many children. But this is not the only reason. For example, if we look at the mortality rates for 1935, the rates were higher for

women than men in age groups 5-19 and 25-39. Also, mortality rates caused by tuberculosis, the primary cause of death at the time, were higher among women in age group 10-19, and those by pneumonia and bronchitis were higher among women between the ages of 15 to 34. Mortality from malignant neoplasm was also higher among women in age group 20-49. Mortality from heart diseases was higher among women aged 0 to 44, and those from hepatitis and nephrosis were higher among women in age group 10-44.

Thus, the fact that the mortality rate was higher among women than men aged 5 or 10 to 19 and that most of these women were still unmarried shows that the living environment of women, and in particular the food, nutrition, sleep and labor conditions, were by no means better than that of men. We can say that this higher mortality stems from the poor living conditions unrelated to childbearing. The fact that mortality from tuberculosis was higher among females in age group 5-19 deserves special attention. The mortality rate continued to be higher among females in this age group until after the war in approximately 1960 when mortality from tuberculosis decreased drastically. Furthermore, the overall mortality rate was higher among females in age group 10-19 until about 1960. It can be argued that the tradition of predominance of men over women going so far as to endanger women's lives continued until the 1960s. Today, discrimination to the extent that it endangers women's lives may no longer exist, but discrimination still remains deeply rooted in the workplace, the home, and in public places where the masses meet.

5. Fertility and Economic Determinants

The major decrease in the fertility rates in recent years in Europe, North America, Japan and the Asian NIEs (South Korea, Taiwan, Hong Kong and Singapore) are seen as a major demographic trend. In Europe and North America, the total fertility rate (TFR) began decreasing suddenly from about 1965 to 2 or under in most countries (see to Table 3.) As shown in Table 3, among developed countries the TFR is only above 2.10, the replacement level (that is the level below which natural growth becomes negative if the TFR continues at that level) in New Zealand, Ireland, Sweden, Poland and the former Soviet Union, Iceland, and below 2.10 in all other developed countries. In West Germany it has dropped below 1.3, and in 1990 it was below 1.4 in Italy and Spain, below 1.5 in Austria, Greece and Portugal, and below 1.6 in Belgium and Switzerland.

The determinants for this decline in the fertility rate can be examined from many angles. One plausible angle is the economic approach of Gary S. Becker, Jacob Mincer and Harvey Leibenstein. According to them, one of the causes for the drop in fertility in recent years is the decrease in the utility of children, in particular their economic value. While the

importance of children as social guarantees for supporting their aged parents has decreased, the expenses for giving birth to, rearing and educating children have increased in recent years, so the advantages of having children have decreased. In particular, as a result of the modernization, industrialization and the expansion of the services industry, the opportunity costs of women have increased and now exceed the benefits of having children. The above-mentioned three scholars also mention that vast time costs which cannot be converted into a monetary value are required to raise children.

This economic approach is quite convincing for explaining the drop in the fertility rate in developed countries, but cannot explain why the TFR has dropped to 1.3 or less in such European countries as Italy and Spain where the employment rate of women is still low, or conversely why the TFR has risen to 2.1 in Sweden or the United States where the employment rate of women is high. It can also not explain the very low fertility rate in Japan and Asian NIEs where the employment rate of women is still low. One factor which can be considered to explain this is the low status of women in southern Europe, Japan and the Asian NIEs. This relationship between the status and role of women and the fertility rate may at first seem indirect, but actually it is deeply related to the social foundation which links the employment of women to giving birth and raising children.

6. Incompatibility between and Possibilities for Harmonizing the Employment of Women with Childbearing and Childrearing

The relationship between the enhancement of the education of women and the decline of the fertility rate is classical. However, it is also widely known that there is an incompatible relationship between the employment of women and the fertility rate. As already stated, giving birth and raising children requires time and poses a financial burden for the parents, particularly for the mother, so that under normal circumstances the employment of women puts restrictions on birth and child-raising, and giving birth and raising children puts restrictions on employment. Much research has been done on this issue both in Japan and overseas. Generally the relationship between the number of children and the employment rate of women is a negative one, and this relationship is more pronounced in developed countries than in developing countries. However, this relationship is not necessarily direct. When seen over the long term, the change in the fertility rate is indeed affected by socioeconomic factors and is related to the employment rate of women, but this is not so clear in the short term.

Table 4 shows the TFR for 1975 and 1989 in twelve European countries and in Japan, as

well as the employment rate for females between the ages of 25 and 44 and the percentage of women employed part-time. According to this table, in general the employment rate of women increased and the TFR decreased between 1975 and 1989. However, the situation is quite different from country to country. If we take a cross-section, we cannot necessarily say that the TFR is particularly low in countries where the employment rate is high or that it is always high in countries where the employment rate is low.

In 1975, the TFR was substantially above the replacement level in southern European countries, that is Italy, Spain, Portugal and Greece. After this, however, these countries experienced a notable decrease in the fertility rate. Currently, Italy is the country with the lowest fertility rate in the world. In 1990, the TFR was 1.29 in Italy, 1.30 in Spain. However, the employment rate of women in these countries is by no means high - 58.8% in Italy and 51.0% in Spain. Inversely, whereas Sweden has the highest employment rate of women at 91.3%, its TFR has recently surpassed 2.10. In Europe we can imagine that birth control is used by virtually all women, so under these circumstances we cannot necessarily say that the fertility rate is always relatively low when of the employment rate of women is high. This depends largely on whether or not there is a sufficient system of financial, institutional and emotional support for the employment of married women, often with young children. If we consider why the fertility rate is low today in southern European countries, we can gather that this is because there is no system of support in place for allowing women to both work and give birth and raise children, and a lack of cooperation from men. We can also point out that in Sweden women are easily able to harmonize work and childcare through institutional care system and parental insurance programmes.

In southern European countries such as Italy and Spain, in recent years the economy is prospering and the service and "soft" industries in which it is easy for women to participate have been growing, but there is a substantial lag or a lack of nurseries and in the treatment and understanding of women in the workplace. In addition, machismo, that is the idea and custom of the superiority of men, is still quite strong in southern Europe, generating a lack of cooperation on housework and childcare, so it appears that when women work outside of the home they tend to forgo giving birth.

In Japan, the idea that the husband is the ruler of the home is similar to the machismo in southern Europe. This idea derives more from a traditional institutionalization of the predominance of men over women than from the sexual virility of the male, and recently in the process of disenchantment with this tradition there is a strong trend for women not to marry or have children. On the other hand, with the introduction of electric appliances and system kitchens in what is called the "kitchen revolution" in Japan, women have been liberated from troublesome housework. Furthermore, with the development of the "soft" industries, most women now work outside of the home for a cash income. Thus, Japanese

women have tasted the "forbidden fruit" and experienced the "fall from Eden". Perhaps many women of marrying age have begun to think that marrying and raising children is maybe not so much fun or that it is not the only thing that makes life worth living and are hesitating to marry and have children.

7. Relationship between Women's Status and the Fertility Rate

Finally, Figure 1 illustrates a very speculative model of the relationship between the enhancement of women's status and their expanded role and the TFR. This is more a hypothesis based on intellectual intuition than a result of rigurous statistical analysis. The X axis indicates the extent of the status of women, equal rights between men and women, and the society's system for supporting women's employment.

As depicted in Figure 1, the status of women is extremely low in Africa and on the Indian Sub-continent, and this is one factor for the high fertility rate. However as the role of women grows with industrialization and urbanization, the status of women improves and the fertility rate decreases. However, when the status of women improves to a certain extent (as shown by an increase in their level of education and employment rate), the existing male-oriented social system and the lack of a system for supporting women in harmonizing work and childcare cause women to "revolt" or "make a revenge" by marrying late, not marrying, divorcing or not having children. They are asserting that they are not machines for bearing children. This improvement of the status of women is irreversible.

However, after a while the "revolt" dies down. As a system for supporting women develops in order to harmonize their work and childcare, as the status and role of women become fully recognized, and as women and men come to have virtually equal rights, women's revenge not to marry, their hesitation to have children and their "strike" against having children would fade out, and the fertility rate would recover to the replacement level. Generally, the process of homeostasis (the mechanism for maintaining natural equilibrium) would set in so as to act for human reproduction.

Of course, this model does not take into consideration such other dimensions as income, opportunity costs and housing. If it did it would be more refined and more elegant. However, concerning opportunity costs, we believe it is applicable for explaining the extremely low fertility rate in cases where the opportunity costs are highest while virtually no system of support for childcare and parental insurance is existent for working married women, such as today in Italy and Spain. The Japanese situation might be not too distant from these countries.

Notes

1) United Nations, "Recommendations for Further Implementation of the World Population Plan of Action" adopted at the International Population Conference on Population, 1984, Mexico City.

2) Six expert meetings were held in preparation for the 1994 International Population Conference in Cairo, and discussions were held on the following six areas of population: 1) Population, development and environment; 2) Population structure; 3) Population policies and programmes; 4) Population and women; 5) Family planning and health; and 6) Internal and international migration.

3) Makoto Atoh, "Towards the Cairo Conference", in "Sekai to Jinko", No. 232, July, 1993.

4) United Nations Secretariat, "Population and Women: A Review of Issues and Trends", Expert Meeting on Population and Women, Gaborone, 22 - 26 June, 1992.

5) Jacques Vallin, "To what extent can sex differentials in mortality be attributed to socioeconomic differentials?", a paper presented to the IUSSP Seminar on Premature Adult Mortality in Developed Countries: From Description to Explanation, Taormina, Italy, 1 - 5 June, 1992.

6) Helen R. Ware, "Differential mortality decline and its consequences for the status and roles of women", in the United Nations, Consequences of Mortality Trends and Differentials, Population Studies, No. 95, New York, 1986, pp. 113 - 125.

Table 1 Average Life Expectancies of Men and Women in Major Regions and Specific Countries: 1985 to 1990

(Unit: age)

Region/country	(1) Average life expectancies of males	(2) Average life expectancies of females	(3) Differences (2) - (1)
World	61.3	65.2	3.9
More developed regions	70.1	77.2	7.1
Less developed regions	59.5	62.0	2.5
Africa	50.1	53.3	3.2
Latin America	63.8	69.4	5.6
North America	71.7	78.6	6.9
Asia	61.9	64.0	2.1
Europe	71.0	77.8	6.8
Oceania	68.7	74.5	5.8
Former Soviet Union	64.7	73.7	9.0
Japan	75.4	81.2	5.8
China	68.0	70.9	2.9
India	57.8	57.9	0.1
Pakistan	56.5	56.5	0.0
Nigeria	48.8	52.2	3.4
Brazil	62.3	67.6	5.3
Sweden	74.3	80.3	6.0
Norway	73.0	79.8	6.8
France	72.0	80.3	8.3
Germany	71.7	78.2	7.4

Source: United Nations, World Population Prospects: The 1992 Revision, New York, 1992.

Table 2 Trends in the Life Expectancies of Men and Women in the Countries on the Indian Sub-Continent

(Unit: age)

Country	1950 - 1955			1970 - 1975			1985 - 1990		
	Males	Females	Differences (Females - Males)	Males	Females	Differences (Females - Males)	Males	Females	Differences (Females - Males)
Afghanistan	31.3	31.8	+ 0.5	38.0	38.0	0.0	41.0	42.0	+ 1.0
Bangladesh	38.3	34.9	- 3.4	45.6	44.1	- 1.5	51.1	50.4	- 0.7
India	39.4	38.0	- 1.4	51.2	49.3	- 1.9	57.8	57.9	+ 0.1
Nepal	36.8	35.8	- 1.0	44.0	42.5	- 1.5	51.5	50.3	- 1.2
Pakistan	40.1	37.6	- 2.5	50.0	48.0	- 2.0	56.5	56.5	0.0
Sri Lanka	57.6	55.5	- 2.1	64.0	66.0	+ 2.0	68.3	72.5	+ 4.2

Source: Same as Table 1.

Table 3 Trends in the Total Fertility Rate in Developed Countries

Region/country	1965	1970	1975	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
Japan	2.14	2.13	1.91	1.79	1.77	1.75	1.74	1.77	1.80	1.81	1.76	1.72	1.69	1.66	1.57	1.54	1.53	1.50
North America																		
Canada	3.11	2.33	1.90	1.75	1.75	1.73	1.70	1.69	1.67	1.69	1.67	1.67	1.66	1.65	1.75	1.80	1.80	---
United States	2.93	2.48	1.77	1.76	1.81	1.84	1.82	1.83	1.80	1.81	1.84	1.84	1.87	1.93	2.01	2.08	2.07	---
South Pacific																		
Australia	2.98	2.86	2.22	1.98	1.94	1.92	1.94	1.94	1.93	1.88	1.89	1.87	1.85	1.84	1.90	1.90	1.85	---
New Zealand	3.33	3.17	2.36	2.10	2.10	2.03	2.01	1.95	1.92	1.93	1.93	1.96	2.02	2.09	2.10	2.16	2.13	---
Northern Europe																		
Denmark	2.61	1.95	1.92	1.67	1.60	1.55	1.44	1.43	1.38	1.40	1.45	1.48	1.50	1.56	1.62	1.67	1.67	---
Finland	2.47	1.83	1.68	1.64	1.64	1.63	1.64	1.72	1.74	1.70	1.65	1.60	1.59	1.70	1.71	1.78	1.80	---
Iceland	3.71	2.81	2.65	2.35	2.49	2.48	2.33	2.26	2.26	2.08	1.93	1.85	2.05	2.27	2.20	2.31	2.19	---
Ireland	4.03	3.87	3.41	3.24	3.23	3.23	3.08	2.96	2.74	2.58	2.50	2.43	2.32	2.18	2.11	2.19	2.18	---
Norway	2.93	2.50	1.98	1.77	1.75	1.72	1.70	1.71	1.65	1.66	1.68	1.71	1.75	1.84	1.89	1.93	1.92	---
Sweden	2.42	1.94	1.78	1.60	1.66	1.68	1.63	1.62	1.61	1.65	1.73	1.79	1.84	1.96	2.02	2.14	2.12	2.09
Britain	2.85	2.45	1.81	1.73	1.84	1.89	1.80	1.76	1.76	1.76	1.80	1.78	1.81	1.84	1.81	1.84	---	---
Western Europe																		
Austria	2.68	2.30	1.83	1.60	1.60	1.65	1.67	1.66	1.56	1.52	1.48	1.45	1.43	1.44	1.45	1.45	1.50	---
Belgium	2.60	2.24	1.73	1.69	1.69	1.68	1.66	1.60	1.56	1.52	1.51	1.53	1.54	1.58	1.59	---	---	---
France	2.84	2.47	1.93	1.82	1.86	1.95	1.95	1.91	1.79	1.81	1.82	1.84	1.82	1.80	1.79	1.78	1.77	---
West Germany	2.50	2.02	1.45	1.38	1.38	1.45	1.43	1.41	1.33	1.29	1.28	1.35	1.37	1.41	1.39	1.45	1.43	1.42
Luxembourg	2.34	1.97	---	1.50	1.48	1.51	1.55	---	1.47	1.43	1.39	1.43	1.39	1.51	1.52	1.62	1.60	---
Netherlands	3.04	2.58	1.66	1.58	1.56	1.60	1.56	1.49	1.51	1.49	1.51	1.55	1.56	1.55	1.55	1.62	1.61	---
Switzerland	2.01	2.10	1.61	1.50	1.52	1.55	1.54	1.55	1.52	1.52	1.52	1.52	1.52	1.57	1.56	1.59	1.61	---
Southern Europe																		
Greece	2.32	2.43	2.33	2.29	2.29	2.21	2.09	2.02	1.94	1.82	1.68	1.62	1.52	1.52	1.43	1.42	---	---
Italy	2.55	2.46	2.19	1.85	1.74	1.66	1.57	1.57	1.53	1.46	1.41	1.33	1.28	1.34	1.34	1.33	1.29	1.27
Portugal	3.07	2.62	2.59	2.28	2.17	2.12	2.04	2.02	1.96	1.87	1.70	1.63	1.57	1.53	1.48	1.54	1.51	---
Spain	2.97	2.87	2.80	2.53	2.31	2.16	1.99	1.87	2.07	1.69	1.61	1.53	1.48	1.43	1.38	1.30	1.28	---
Yugoslavia	2.71	2.29	2.27	2.15	2.12	2.13	2.06	2.10	2.09	2.10	2.04	2.00	2.00	1.99	1.88	1.88	---	---
Eastern Europe																		
Bulgaria	2.03	2.18	2.23	2.15	2.15	2.05	2.01	2.02	2.00	1.99	1.95	1.99	1.96	1.97	1.86	1.73	1.57	---
Czechoslovakia	2.37	2.07	2.43	2.36	2.33	2.16	2.10	2.10	2.08	2.07	2.06	2.03	2.00	2.01	1.95	1.96	1.92	---
East Germany	2.48	2.19	1.54	1.90	1.90	1.94	1.85	1.85	1.79	1.74	1.74	1.70	1.74	1.67	1.57	1.44	1.89	1.74
Hungary	1.82	1.96	2.35	2.07	2.01	1.91	1.88	1.79	1.72	1.73	1.83	1.84	1.82	1.79	1.78	1.84	1.86	---
Poland	2.52	2.20	2.27	2.20	2.25	2.26	2.22	2.31	2.40	2.37	2.33	2.22	2.15	2.13	2.08	2.04	2.05	---
Rumania	1.91	2.89	2.60	2.52	2.48	2.43	2.35	2.19	2.00	2.19	2.26	---	---	2.31	2.19	1.83	1.56	---
Soviet Union (*1)	2.46	2.39	2.41	2.32	2.28	2.26	2.25	2.29	2.37	2.41	2.40	2.46	2.53	2.38	2.40	2.26	---	---

Source: United Nations, Demographic Yearbook; Council of Europe, Recent Demographic Developments in the Member States of the Council of Europe, 1992, INED, France and materials of the central statistics bureaus of the various countries.

Table 4 TFR for 1975 and 1989 in Major European Countries, the U.S. and Japan, Employment Rate for Females Aged 25 to 44 and Percentage of Women Employed Part-time

Country	TFR		LFP		PT
	1975	1989	1975	1989	1989
Belgium	1.74	1.58	40.5	69.0	25.0
Denmark	1.92	1.62	59.0	89.1	40.1
France	1.93	1.81	46.8	74.1	23.8
West Germany	1.45	1.39	49.8	64.1	30.7
Greece	2.37	1.50	42.7	56.0	8.0
Ireland	3.40	2.11	24.8	47.4	16.5
Italy	2.21	1.29	32.9	58.8	10.9
Luxembourg	—	1.52	—	53.4	16.4
Netherlands	1.66	1.55	24.6	59.7	60.1
Norway	1.99	1.88	31.1	79.0	57.0
Portugal	2.52	1.50	25.9	72.5	10.0
Spain	2.79	1.39	16.6	51.0	11.9
Switzerland	1.78	2.02	54.5	91.3	40.0
United States	1.81	1.81	51.7	72.1	43.6
Europe 12	2.07	1.58	—	65.2	28.0
Japan	1.91	1.57	48.3	60.1*	27.5

Source: Eurostat. Demographic Statistics 1991 and Labour Force Survey 1989 Statistics, Sweden. Labour Force Surveys and Vital Statistics Statistical Yearbook for Norway. Japan, Institute of Population Problems, Ministry of Health and Welfare (1991) Latest Demographic Statistics; Japan Bureau of Statistics (1992). One-percent Census Tabulation of 1990 Census. The figures for all countries listed except for Japan are actually adapted from the paper of Eva Bernhardt (1991), Working Parents in Sweden: An Example for Europe, a paper presented for the Eurostat Conference on Human Resources at the Dawn of the 21st Century, Luxembourg, 27-29 November, 1991.

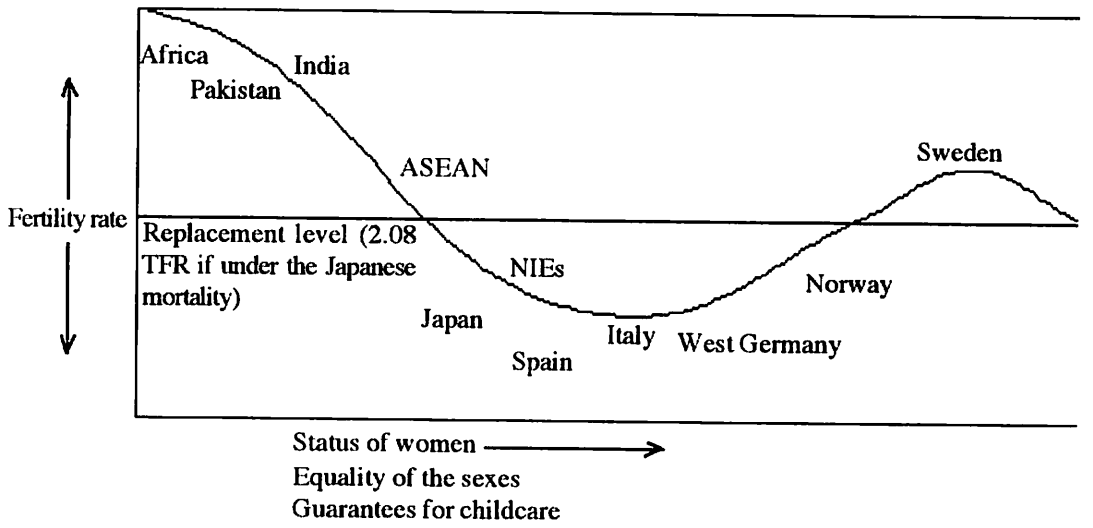

Figure 1 Relationship between the Status of Women and Fertility (highly speculative model)

Note: This figure is presented for an illustrative purpose.
The scale and trajectory of total fertility rate in this graph do not necessarily correspond to their actual levels and trend.

Chapter Four

SOCIAL CHANGES AND THE FAMILY
THE DECREASE IN THE SIZE OF THE FAMILY

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1 Introduction

It is said that the family in Japan has undergone major changes together with changes in the economy and society (*1). However, when we closely study changes in the family, we can see that though the composition of the family (*2) (the type and number of constituent members of the family) has changed greatly, the family norm (*3) (the idea of what the family should be and the style of behavior of the constituent members) has remained virtually unchanged.

In this chapter we will focus on the family composition, which changes readily in response to economic and social changes, and attempt to describe and analyze these changes in family composition in association with demographic changes, particularly birth behavior, since we believe that changes in family composition (quantitative changes in the family) are closely related to changes in the number of births and that changes in the number of births possess the property of being easily influenced by economic and social changes.

2 Trends in Research and the Analytical Framework Concerning the Decrease in the Size of the Family

Here we will outline trends in research concerning the decrease in the size of the family and study the analytical framework associated with social changes and family issues.

If we study the process of change in the family composition in Japan and particularly in the size of families, we see that this is a process of decrease in the size of the family.

How does this decrease in the size of the family come about?

According to Kiyomi Morioka, the decrease in the size of the family is brought about by industrialization, the decrease in the birth rate and the permeation of the idea of the conjugal family system (*5). Morioka discusses these three factors as follows. Concerning industrialization, Morioka states that changes in industrial structure "bring about increased regional migration of labor, causing not only 'other relatives' but also children to leave the family earlier, thereby encouraging the decrease in the size of the family (*6)". Concerning the decrease in the birth rate, Morioka states that this decrease "directly reduces the number of children and also reduces the number of 'other relatives' in the next generation, inevitably resulting in a decrease in the size of the family (*7)". Concerning the idea of the conjugal family system, this idea "encourages and justifies not only 'other relatives' but also children,

including family heirs, in leaving the family, thus contributing to a decrease in the size of the family (*8)."

However, Morioka says that industrialization and the decrease in the size of the family are not necessarily in a compatible relationship, and that when we study trends in the progression of industrialization and the decrease of family size we can distinguish two types of trends, the U.S. type and the British type (*9). With the U.S. type, the relationship between industrialization and the decrease in the size of the family is compatible. This relationship can also be seen in France. With the British type, however, industrialization and the decrease in the size of the family are not necessarily in a compatible relationship. This type of relationship can be seen in Germany and Japan (*10). Furthermore, concerning the decrease in family size in Japan, Morioka states, "The idea of the conjugal family system began permeating society in the 1950s, incited by the revised civil laws. In addition, since artificial termination of pregnancy was legalized for economic reasons by the revision of the Eugenic Protection Act in June, 1949, the birth rate began dropping substantially in the early 1950s. Furthermore, the revival of the Japanese economy also began at this period, resulting in increased labor migration, and the conditions for maintaining stable lifestyles in units of husband and wife matured within the rapid economic growth of the 1960s. Thus, Japan had reached an unprecedented period of reduction in household size. However, the trend toward decreasing family size slowed down considerably beginning from the middle of the 1970s when the country entered a period of slow growth, and this situation continues today (*11)."

Considering such trends in research, we believe they suggest that describing and analyzing the issue of the decrease in family size using changes in fertility, the spread of family planning, and the permeation of the idea of the conjugal family system as analytical indices is an effective way of approaching this issue.

3 Trends in and Motives for the Decrease in Family Size

Now we will study the changes in fertility, the spread of family planning, and the permeation of the idea of the conjugal family system in consideration of the above mentioned research trends.

(1) Trends in the decrease in family size

First we will examine the process of reduction of family size (*13) in the postwar period as seen in the trend in the average number of members per household. In 1950 the average household consisted of almost five members (4.97). This number subsequently decreased to approximately 4 in 1965, dropped under 4 in 1970, decreased to approximately 3 in 1991,

then dropped under 3 to 2.99 in 1992. Thus, 15 years were required for the change from 5-member families to 4-member families and it took 26 years to move from 4-member families to 3-member families. In other words, the average number of household members decreased by approximately 2 in this 42-year period (see Table 1).

Now we will consider the factors for this decrease in family size.

(2) Spread of family planning and decrease in the birth rate

The Population Problem Research Council of the Mainichi Newspapers has been conducting national public opinions survey on family planning since 1950. In response to the question "Have you and your spouse ever used contraceptives?", in 1950 and 1952 over 50% of respondents answered "never", but this percentage dropped to under 50 in 1955, then decreased abruptly. This indicates that there has been an increase in the use of family planning. In response to the question "do you currently use contraceptives?", less than 20% answered "yes" in 1950, but over 50% answered yes in 1965 and over 60% answered yes in 1992 (see Table 2).

In any case, we can see from these results that family planning began spreading between 1955 and 1965 and became firmly implanted between 1965 and 1975.

What effect did this spread in family planning have on the decrease in the birth rate? To examine this using the total fertility rate, in 1950 the TFR was 3.65, then decreased to 2.37 in 1955, continued to drop to 1.91 in 1975, and has reached 1.50 today. In view of this trend, we can say that the total fertility rate has decreased in conjunction with the increase in the use of family planning (see Table 3).

(3) Establishment of the idea of the conjugal family system

Here we will consider that the move from the idea of the stem family system (the idea that it is best for the parents, their children and their children's spouses to live together) to the conjugal family system (the idea that it is best for the parents to live separately from their children and their children's spouses) has become firmly established at the point were over 50% of elderly people live separately from their children and their children's spouses. This is because at higher ages, the number of cases in which the woman has lost her spouse increases and the percentage of people requiring care also increases. When this situation occurs, there is a need to chose whether the parents' generation and children's generation which had previously been living apart should continue to live apart or live together. Because of this, we can consider that the characteristics of the family system (the concept of the family) are condensed in the trends in the living formats of this generation.

Now we will look at the changes in the concept of the family based on this approach. We will observe these changes using the categories "living together" (those living with

children + those living with other relatives + those living with non-relations) and "living apart" (those living alone + couples living alone).

According to the "Basic Survey on National Life" (called the "Basic Survey of the Health and Welfare Administration" until 1985) by the Ministry of Health and Welfare's Statistics and Information Department, in 1980 72.0% of the population was in the "living together" category and 28.1% was in the "living apart" category. In 1985, the percentage of the population "living together" dropped under 70 (67.5% "living together", 32.3% "living apart"). As of 1992, the percentage of the population "living together" (60.8%) remained above the percentage of the population "living apart" (39.3%) (see Table 4).

Furthermore, to look at the living format of the elderly in steps of five years for 1992, in the 65 to 69 age bracket, 49.5% of the people were in the "living together" category, 37.1% were in the "living apart" category, and 7.5% were in the "no children" category. In the 70 to 74 age bracket, 53.2% of the people were in the "living together" category, 35.4% were in the "living apart" category, and 6.3% were in the "no children" category. In the 75 to 79 age bracket, 60.7% of the people were in the "living together" category, 30.2% were in the "living apart" category, and 4.9% were in the "no children" category. In the 80 and above age bracket, 72.6% of the people were in the "living together" category, 20.5% were in the "living apart" category, and 3.4% were in the "no children" category. This indicates that the percentage of population 75 and over in the "living together" category increases.

From these results, we cannot say that the family system in Japan has already moved from stem family system to the conjugal family system.

In any case, the results of these surveys indicate that the spread of family planning has brought about a decrease in the birth rate and that this has acted to decrease family size, but considering that the concept of the stem family system remains prevalent, the concept of the family has not been a motive for the decrease in family size.

4 Social Changes and the Family - The Decrease in the Size of the Family

Considering the above results, we will now examine the decrease in family size in the future from the aspects of factors for the decrease in the birth rate, perceptions on the decrease in the birth rate, living formats and fertility, and changes in the concept of the family.

(1) Factors for the decrease in fertility and perceptions on the decrease in fertility

According to the "Survey on National Living Preferences" conducted in 1992 by the

Economic Planning Agency's Economic Welfare Bureau, major factors given for the decrease in fertility (*14) are the burden of upbringing expenses ("the high burden of expenses for bringing up children") and the lack of childcare facilities and systems ("the number of women working outside of the home has increased, but the facilities and systems for facilitating childcare are insufficient"). By sex, the number of men answering the burden of upbringing expenses as the major factor was slightly higher than women, but the number of women answering the lack of childcare facilities and systems was far higher than men (see Figure 1).

Next, concerning perceptions on the decrease in fertility, a relatively large number of respondents answered "it is not good that the population should decrease and the vitality of the nation be lost" and "this is unavoidable because of the lack of a social environment making it easy to have children". By sex and age bracket, the number of respondents answering the former was large among both men and women in the 40 and above age bracket, while the number answering the latter was high among both men and women in the 20 to 39 age bracket (see Figure 2).

The above suggests that the main causes for the current decrease in fertility are the burden of upbringing expenses and the lack of childcare facilities and systems, and that fertility may improve through the establishment of childcare facilities and systems.

(2) Living arrangements and fertility

According to the "10th Japanese National Fertility Survey" conducted in 1992 by the Institute of Population Problems, Ministry of Health and Welfare, the average number of children born is higher in cases where there was parental assistance for the home in which the couple is currently living than when there was no parental assistance. In particular, for couples married 15 years or more, the average number of children born is approximately 2.3 when the couple is living in a home built on the parents' land and when they are living in the parents' home. This indicates that the birth rate is particularly high in "living together" situations (when the couple is living in the parents' home) and "living adjacent" situations (when the couple is living in a home built on the parents' land) (see Table 5).

(3) Changes in the family norm

According to the "Survey on Life and Care of the Aged" conducted in 1992 by the Director General's Secreteriat, Management and Coordination Agency concerning the opinion of people in their 30s and 40s (*16) on whether children should live with or separately from their parents after they get married, 46.7% believe in living together with their parents ("the son and his wife should live with the son's parents" + "the daughter and her husband should live with the daughter's parents") and 41.5% believe in living apart from their

parents ("children and their spouses should live apart from their parents"). However, concerning opinions on living with or separately from their parents if their parents are not healthy, the number of those who believe in living together with their parents increases greatly to 77.1%, with only 10.9% believing in living apart from their parents. Furthermore, concerning opinions on living with or separately if only one of their parents is left, 78.2% believe in living together with their parent and 10.0% believe in living apart from their parent (see Tables 6 and 7).

To judge from these survey results, there is little possibility for a change in the Japanese family from the stem family system to the conjugal family system.

5 By Way of Conclusion

We have now examined the trends in the decrease in the size of the family from various aspects. This decrease in family size today was brought about by the decrease in fertility arising with the spread of family planning, but the main causes of this decrease in fertility are thought to be the burden of upbringing expenses and the lack of childcare facilities and systems. Furthermore, when we examine the relationship between fertility and the presence or absence of parental assistance for housing (living format), we see that fertility is higher when there is parental assistance, lower when there is no parental assistance, and that the cases of children living with or adjacent to their parents is clearly higher when there is parental assistance.

Furthermore, concerning the concept of the family, it does not appear that there is a change from the stem family system to the conjugal family system. However, it seems that though the basic concept of the family is that of the stem family system, this is manifested to a relatively greater extent in living formats when parents reach their later years (that is, there is a tendency for children to live apart from their parents while their parents are healthy, but to live with their parents when their parents become weaker or when one of the parents deceases). Thus, if the stem family system living format were to begin from the point directly after which children marry (when they give birth and raise their own children), the size of the family would be larger, because "living together" is a factor which increases fertility.

In any case, in view of these survey results, we believe that the trend for the decrease in the size of the family in the future will be affected by the reduction of the burden of upbringing expenses, the establishment of childcare facilities and systems, the improvement of the living environment and the period of transition from the conjugal family system to the stem family system.

Notes:

1) According to Takako Sodei, "The family in post-war Japan experienced two major periods of transition. The first was the abolition of the "ie" system, the second the period of rapid economic growth. ... Today, the family is facing the third major period of transition -- the advent of the aged society." (Takako Sodei, "The Family - The Third Period of Transition", Aki Shobo, 1985, p. 3). This suggests that the Japanese family has changed (or will change) in connection with social changes (the abolition of the "ie" system), economic changes (rapid economic growth), and demographic changes (the aging society).
2) Takeji Kamiko, "The Family in Japan", in "Family Relations of the Japanese People - A Search for a 'New Image of the Family' in Comparison with Other Cultures", edited by Takeji Kamiko and Kokichi Masuda, Yuhikaku, 1981, p. 5.
3) Takeji Kamiko, op. cit., p. 14.
4) Chie Nakane, "Human Relations Centered on the Family" (Kodansha Science Library), Kodansha, 1977, p. 169.
5) Kiyomi Morioka, "Changes in the Family Composition", in "New Family Sociology (Third Revision)" by Kiyomi Morioka and Takashi Mochizuki, Baifukan, 1993, p. 194.
6) Kiyomi Morioka, op. cit., p. 194.
7) Kiyomi Morioka, op. cit., p. 194.
8) Kiyomi Morioka, op. cit., p. 194.
9) Kiyomi Morioka, op. cit., pp. 192 - 193.
10) Kiyomi Morioka, op. cit., pp. 192 - 193.
11) Kiyomi Morioka, op. cit., p. 194.
12) The objective of awareness in social sciences is "rather than to learn the causes of all phenomenon, to be aware of what is significant for people living there and their actions, and thereby to gain an understanding of the particularities of the historical and social reality" (Mutsundo Atarashi, "Sociology as Self Awareness of Modern Society", in "Trends in Sociology" by Mutsundo Atarashi, Hideaki Omura, Makoto Hogetsu, Masataka Nakano, and Hideichihiro Nakano (Yuhikaku New Writings), Yuhikaku, 1979, p. 53). Here we follow this approach.
13) Here we discuss family size using data on household size.
14) The question asked was "What do you think is the cause for the decrease in the birth rate?"
15) The question asked was "The total fertility rate in 1990 was 1.54, the lowest ever. What do you think of this?"

16) This is the generation of children who must support their parents. We have chosen this generation here because we believe that it is the opinions of people in this generation which will influence future trends.

Table 1 Trends in Average Household Members

Year	Average household members
1950	4.97
1955	4.97
1960	4.54
1965	4.05
1970	3.69
1975	3.44
1980	3.33
1985	3.23
1986	3.22
1987	3.19
1988	3.12
1989	3.10
1990	3.05
1991	3.04
1992	2.99

Source: "Population Census", Statistics Bureau, Management and Coordination Agency, and "Basic Survey of the Health and Welfare Administration" and "Basic Survey on National Life", Statistics and Information Department, Ministry of Health and Welfare.

Table 2 Trends in Use of Contraceptives

(Unit: %)

Year	Use of Contraceptives			
	Currently using	Have used in past	Have never used	Others or no answer
1950	19.5	9.6	63.6	7.3
1952	26.3	13.9	54.9	4.9
1955	33.6	18.9	41.5	6.0
1957	39.2	17.3	38.3	5.2
1959	42.5	20.2	33.0	4.3
1961	42.3	26.1	28.5	3.1
1963	44.6	19.1	29.8	6.5
1965	55.5	26.8	16.5	1.2
1967	53.0	19.2	23.1	4.7
1969	52.1	19.3	19.1	9.6
1971	52.6	16.8	20.2	10.4
1973	59.3	15.1	22.0	3.6
1975	60.5	13.3	21.0	5.2
1977	60.4	13.3	19.4	6.9
1979	62.2	11.7	21.5	4.6
1981	55.5	16.0	24.2	4.3
1984	57.3	16.5	23.4	2.8
1986	62.8	13.6	21.1	2.4
1988	56.3	20.5	19.6	3.6
1990	57.9	20.4	16.5	5.1
1992	64.0	17.0	15.1	4.0

Source: Population Poblem Research Council of the Mainichi Newspapers, "Records on the Population of Japan - The Move Towards the Low Birth Rate - Statistics From All 21 Surveys on Family Planning", Mainichi Shimbun, 1992.

Table 3 Trends in the Total Fertility Rate

Year	Total fertility rate
1950	3.65
1955	2.37
1960	2.00
1965	2.14
1970	2.13
1975	1.91
1980	1.75
1985	1.76
1986	1.72
1987	1.69
1988	1.66
1989	1.57
1990	1.54
1991	1.53
1992	1.50

Source: "Vital Statistics", Statistics and Information Department, Ministry of Health and Welfare.

Table 4 Trends in Living Arrangements of the Aged

(Unit: 1000 persons, %)

Year	Total	Living alone	Couple only	Living with child	Living with other relative	Living with non-relative
1980	10,729	8.5	19.6	69.0	2.8	0.2
1985	12,111	9.3	23.0	64.6	2.8	0.2
1986	12,626	10.1	22.0	64.3	3.2	0.3
1987	13,030	9.9	23.3	63.3	3.2	0.2
1988	13,491	10.4	24.2	61.9	3.2	0.4
1989	14,239	11.2	25.5	60.0	3.1	0.2
1990	14,453	11.2	25.7	59.7	3.3	0.2
1991	15,599	11.6	27.2	57.6	3.3	0.3
1992	15,986	11.7	27.6	57.1	3.4	0.3

Source: "Basic Survey of the Health and Welfare Administration" and "Basic Survey on National Life", Statistics and Information Department, Ministry of Health and Welfare.

Table 5 Average Number of Children Born by Duration of Marriage and Parental Assistance for Housing

(Unit: persons)

Type of parental assistance for housing	Duration of marriage				
	Total period	0 - 4 yrs.	5 - 9 yrs.	10 - 14 yrs.	15 yrs. and above
Total	1.90	0.80	1.85	2.19	2.23
Parental assistance for housing	2.04	0.88	1.95	2.26	2.31
Living in parent's house	2.09	0.92	2.06	2.36	2.38
Living in house built on parent's land	2.17	1.08	2.00	2.25	2.29
Financial assistance from parents for purchasing house	1.96	0.81	1.75	2.06	2.21
Financial assistance from parents for renting house	1.31	0.71	1.56	2.06	2.14
No parental assistance for housing	1.76	0.75	1.75	2.11	2.13
Unknown	1.93	*	1.76	1.97	2.20

Note: "Total" includes cases in which it is unclear whether there is parental assistance for housing.
"Total period" includes cases in which period is unknown.
* Fewer than 20 samples.

Source: "Outline of the Results of the 10th Japanese National Fertility Survey (Marriage and Fertility in Present-Day Japan)", 1993, Institute of Population Problems, Ministry of Health and Welfare.

Table 6 Opinions on Married Children Living With Their Parents

(Unit: persons, %)

	Number surveyed	Son and his wife should live with the son's parents	Daughter and her husband should live with the daughter's parents	Children and their spouses should live apart from their parents	Do not know
1992	1,235	35.2	11.5	41.5	11.7
1987	1,313	39.7	11.5	36.7	12.1
1981	1,259	45.9	12.3	30.3	11.4

Source: "Outline of the Results of the Survey on Life and Care of the Aged", 1992, Director General's Secreteriat, Management and Coordination Agency.

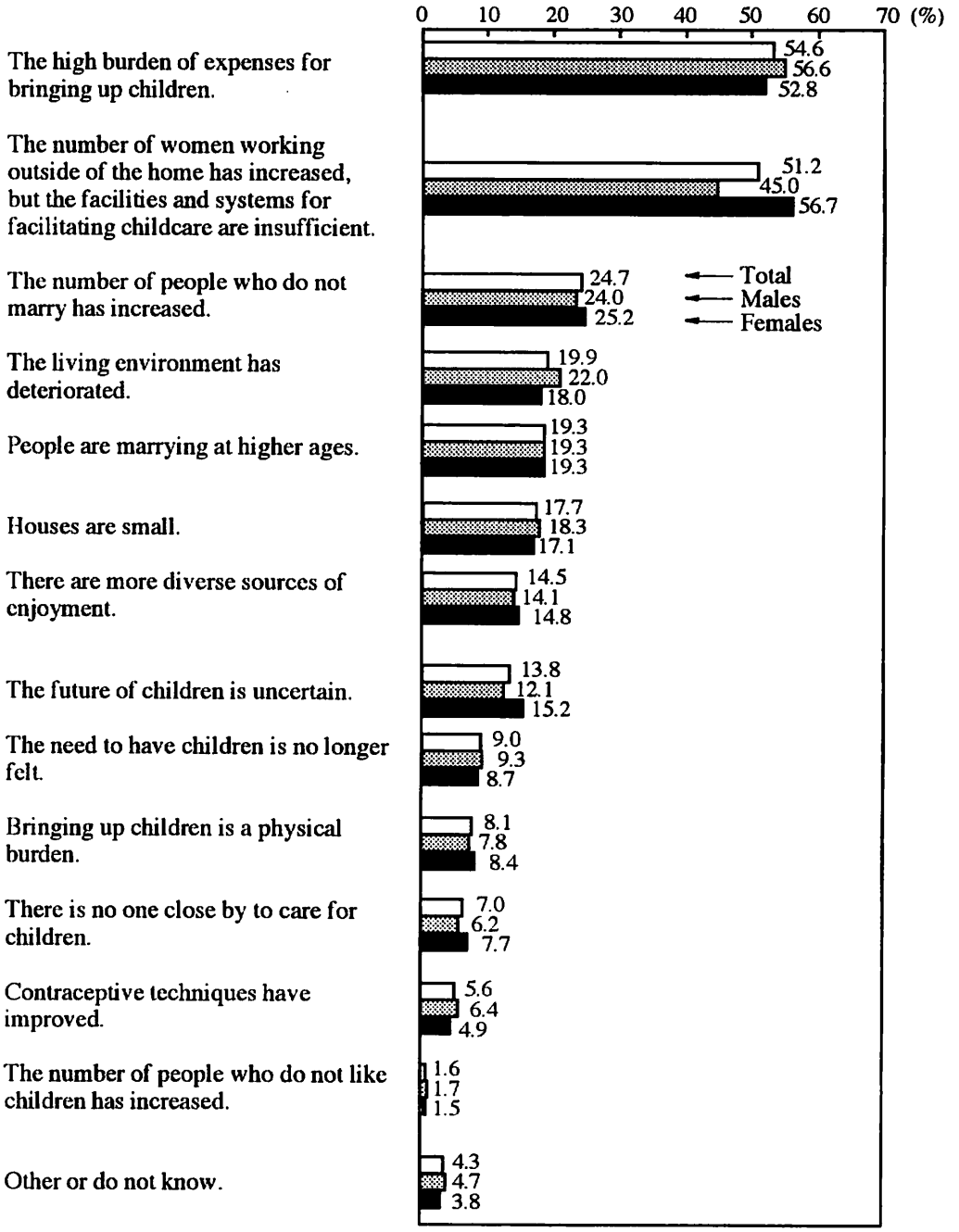
Table 7 Opinions on Living With Parent When Only One Parent is Alive

(Unit: persons, %)

	Number surveyed	Son and his wife should live with the son's parents	Daughter and her husband should live with the daughter's parents	Children and their spouses should live apart from their parents	Do not know
1992	1,235	55.5	22.7	10.0	11.9
1987	1,313	60.2	22.7	5.4	11.7
1981	1,259	63.2	20.5	5.0	11.3

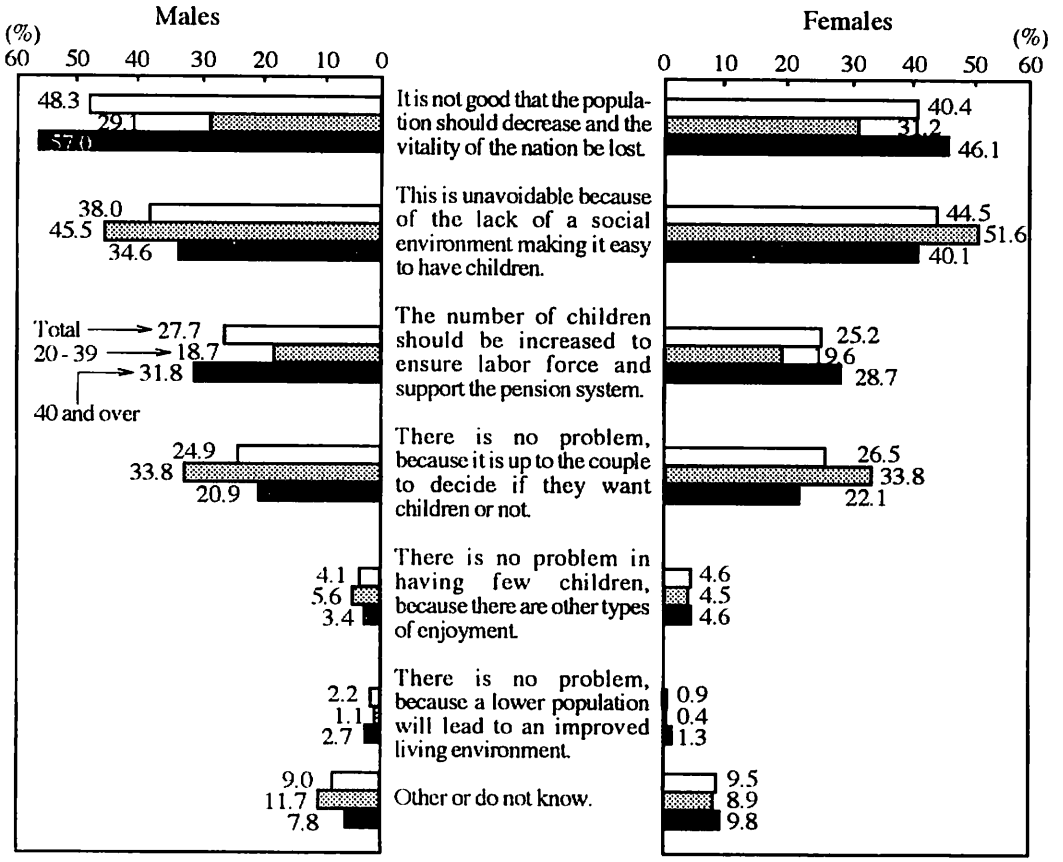
Source: "Outline of the Results of the Survey on Life and Care of the Aged", 1992, Director General's Secreteriat, Management and Coordination Agency.

Figure 1 Causes on the Decrease in the Birth Rate (by Sex)



Source: "1992 Survey on National Living Preferences", Economic Welfare Bureau, Economic Planning Agency, 1993.

Figure 2 Perceptions on the Decrease in the Birth Rate



Source: "1992 Survey on National Living Preferences", Economic Welfare Bureau, Economic Planning Agency, 1993.

Chapter Five

POPULATION CHANGES AND POPULATION POLICIES: - JAPAN'S EXPERIENCE -

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1 Demographic Transition and Population Issues

The population of Japan began changing greatly along with the process of modernization which began at the time of the Meiji Restoration (at the end of the 1860s). The source of these changes was the series of changes in the birth and death rates, in what is called the vital revolution or demographic transition. The process of changes in vital rates, from a high birth and high death rate to a high birth and low death rate and subsequently to low birth and death rates, brought about major changes in the size and structure of the population. In addition, the changes in the size and structure of the population accompanying demographic transition gave rise to population issues characteristic of the different stages of the process and incited the government to devise policies to deal with them.

Japan's experience is not necessarily the same as the experience of developing countries currently in the process of economic development and demographic transition. However, to the extent that there is a certain degree of universality in demographic transition, it is not possible for them to avoid certain population issues characteristic of the different stages of the process. Thus, studying the policies the Japanese government has taken to deal with these issues should be of reference for developing countries which will likely experience similar issues.

Japan's process of demographic transition can be divided into five major periods. The first period extends from approximately 1870 through 1920. In this period, the death rate slowly decreased, and the birth rate inversely slowly increased. Since the gap between the crude birth and crude death rates gradually grew, the rate of population growth accelerated. The second period extends from approximately 1920 through the middle of the 1940s (World War II). In this period, the birth rate slowly began to decrease, but the death rate decreased at a faster pace, so the momentum of population growth grew stronger.

In the third period, extending from the end of World War II to approximately 1960, the death rate decreased sharply, and the birth rate also decreased dramatically after a temporary baby boom. The life expectancy at birth reached nearly the levels of other developed countries at the time, and the total fertility rate quickly reached the population replacement level. The accomplishment of fertility transition in this period weakened the momentum of population growth.

The fourth period extends from approximately 1960 to the middle of the 1970s. In this period, the crude birth and death rates were relatively stable. With the continuous decrease in the death rates among the population of middle and advanced age, however, the life expectancy at birth continued to grow steadily, and the total fertility rate continued at the population replacement level. As a result of the accomplished fertility transition, the aging of

Japanese population started. This also corresponds to the period of rapid economic growth, and there was major population migration from rural to urban areas and from non-metropolitan to metropolitan areas, thus furthering the depopulation of mountain and fishing villages and the overpopulation of large cities.

The fifth period corresponds to the final stage of demographic transition. The gap between the birth and death rates has grown even smaller and the population growth rate has continued to drop, while the aging of the population carried over from the fourth period is advancing steadily. In addition, two new changes in demographic dynamics have arisen in this period. One is the fact that the total fertility rate, which had remained stable in the fourth period, fell below the population replacement level in the mid 1970s, then dropped further in the second half of the 1980s. This ultra-low birth rate has acted together with the continual extension of the life expectancy at birth due to improvements in the death rate of middle aged and elderly people to accelerate the aging of the population. The other is changes in the tide of international migration related to Japan. From the first to the fourth period, Japan was rather a country of emigration, but in the fifth period, there has been a rapid influx of foreign workers mainly from neighboring Asian countries and Latin American countries, and the proportion of the foreign population has increased.

Of the above five periods, the major population issue in the first through the third was the problem of the rapid increase of the population, a problem which many developing countries are currently experiencing. The first focus of this chapter will be the policies the Japanese government adopted to deal with population explosion, fertility policies. The major population issues in the fourth period were depopulation and overpopulation, that is the problem of regional imbalances in the distribution of the population, so our second focus will be Japan's national land development policies. In the fourth and fifth periods, the issue of the aging of the population has become of increasing social interest, so our third focus will be the establishment of social security policies in response to the aging society. The two new demographic issues which have arisen in the fifth period, that is the rapid increase in the number of foreign workers and the ultra-low birth rate, have also become of social interest, so our fourth and fifth focuses will be the policies being adopted to deal with these issues.

2 Policies for Dealing with Rapid Population Growth

Since the Meiji era, the Japanese government has put strong efforts into health and hygiene programs with the objective of preventing infectious diseases and improving the health of the nation. This, together with the increase in the living standard brought about by economic development, led to a gradual decline in the death rate. The crude death rate (the

death rate per 1000 population) decreased from 27.2% in 1870 to 25.4% in 1920, then dropped somewhat faster to 16.0% in 1941. During this time, the crude birth rate (the birth rate per 1000 population) increased somewhat from 30.3% in 1870 to 36.2% in 1920, then began slowly decreasing to reach 26.6% in 1939. Since the first year of the Meiji era (1868), the Japanese government adopted a policy of emigration, but the number of emigrants was small, and since the population growth was determined mainly by the natural increase (the difference between the number of births and deaths), the growth of the population accelerated as the gap between the birth and death rates widened. Whereas the annual population growth rate was only about 0.5% in the 1870s, in the 1920s it had reached 1.5%. The total population of Japan in 1870 was 35 million, but by the middle of the 1930s it had reached 70 million.

The growth of the population signified an increase in the capacity of supply of cheap labor for the developing secondary industries, but the disparity in wealth grew both in rural and urban areas, creating hotbeds of social and political unrest. In particular, the rice riots in 1913 and the problem of unemployment brought on by the Great Depression in 1929 served to make people aware of the importance of population issues. In 1927, the government established the "Committee for Population-Food Problems", whose main purpose was not to stem the growth of the population, but rather to study how to increase the production of food to support the population under the premise that the population would grow. Furthermore, the Institute of Population Problems was set up in the Ministry of Health and Welfare in 1939, but as Japan was already on a war footing at the time, the government's answer to resolving population issues was to aim at the acquisition of new territories rather than to control population growth by anti-natalist policies.

In 1941, the Japanese government announced the "Guideline for Promoting Population Policies and Programmes", aiming at guaranteeing the human resources required for implementing the war. This policy called for increasing the population of mainland Japan from 72 to 100 million by 1960, and consisted of both measures to reduce the death rate and various strategies to increase the birth rate. The latter included the encouragement of marriage, family benefits, restrictions to the employment of women, maternal education, and the prohibition of contraception and induced abortion. Japan's birth rate had been gradually decreasing since the 1920s, but increased with the introduction of these pro-natalist policies. However, this increase was very short-lived. With the abrupt change in the fortunes of the war, these policies were never implemented with any effectiveness in the form of concrete programs.

After the end of World War II, Japan faced a drop in the national economic production and in the living standard due to the collapse of the secondary industries, but with the repatriation of Japanese citizens from overseas, the demobilization of soldiers, and the baby boom of 1947 to 1949, the population increased abruptly. In a period of only five years, from

1945 to 1950, Japan saw a social increase of 5 million people and a natural increase of 6.7 million people, the sum of which was equal to an increase of 16% over the estimated population of 72 million in 1945. In 1949, the Japanese government established the Advisory Council on Population Issues, which proposed alleviating demographic pressure through the prevalence of birth control as well as reconstructing industrial capacities. However, the government never gave concrete form to this proposal. The New Advisory Council on Population Issues convened in 1953 emphasized the need for policies to restrict population growth, and called for the spread of family planning as a means to do this. But despite the suggestions of such councils, the Japanese government did not take a clear-cut stance for controlling population growth, and all its efforts for the spread of family planning were promoted from the viewpoint of reducing induced abortion and protecting maternal and child health. More concretely, in 1951 a Cabinet decision was reached on the spread of family planning, in 1952 a system of family planning field workers was established, and in 1955 the sale of contraceptives by family planning field workers was admitted.

Directly after the post-war baby boom, the birth rate decreased abruptly, as did the number of births. The total fertility rate went from 4.32 in 1949 to 2.04 in 1957, and the number of births in the same period dropped by over 1 million, from 2.7 million to 1.6 million. A direct factor in this sudden drop in the birth rate was the enactment of the 1948 Eugenic Protection Act through legislation by House members, legalizing artificial termination of pregnancy. The number of registered abortions increased drastically from 70,000 in 1949 (3 per 100 births) to 1.17 million in 1955 (68 per 100 births), but then decreased steadily. However, it is thought that the number of actual abortions was far higher than the number of registered abortions, so the use of abortion had an extremely strong effect on curtailing the birth rate.

Such private organizations as the Japan Family Planning Association and the Japan Family Planning Federation were put in charge of implementing the government's programs for the spread and promotion of family planning, but some local governments and business corporations were also actively involved. As a result, contraception gradually became more wide-spread and came to replace abortion. The rate of active use of contraception (among espoused women under 50) was only approximately 20% in 1950, but had reached approximately 60% by 1975. It is estimated that contraception surpassed abortion as a means of birth control in about 1960, and subsequently became the major means of birth control. At first, many forms of contraception were tried, but gradually condoms became the most common form. Today, roughly 75% of all couples practicing contraception use condoms. Furthermore, by far the most common way of acquiring contraceptives today is to purchase them on the market.

Faced with the problem of overpopulation, the Japanese government did not adopt a

clear-cut strategy for controlling population growth, neither before the war nor after, and did not take the stance of approving contraception or abortion as a population policy. However, in the post-war period, the Eugenic Protection Act established in emergency fashion through legislation by House members and the movement to spread contraception with the aim of reducing abortion had the effect of contributing to the decrease in the birth rate, the spread of contraception and the stemming of population growth. Japan's population continued to grow from 83 million in 1950 to 124 million in 1992, but the population growth rate dropped abruptly directly after the baby boom, remained stable at about 1%, and since the 1980s the Japanese population has been moving rapidly towards zero growth.

3 Policies for Dealing with Regional Overpopulation and Depopulation

Japan's process of economic development was also the process of development of industry in cities, and at the same time the process of the accumulation of population in cities, particularly in the three major metropolitan areas (the Tokyo, Osaka and Nagoya areas), due to the population migration from rural to urban areas in response to the increased demand for workers in cities. In the period of rapid economic growth following post-war reconstruction, migration from rural to urban areas and from the non-major to the major urban areas was heavy. The migration at this time was caused by both the increase in the labor demand in the large urban areas, a "pull factor", and the fact that the generation born in the period of high births and low deaths in the process of demographic transition in non-major urban areas had reached young adulthood, an age at which the disposition towards migration is strong, constituting a "push factor".

From the middle of the 1970s on, after the period of rapid economic growth, population migration became relatively inactive, and most movement now is within large urban areas, but of the three major urban areas migration to the Tokyo area continues even today.

As a result of this population migration, the share of the urban population within the total population rose abruptly from 38% in 1950 to 72% in 1970, and has reached 77% as of 1990. The percentage of the population living in the three major urban areas rose rapidly from 35% in 1950 to 46% in 1970, and had reached 49% as of 1990. Of these areas, the share of the population living in the Tokyo area rose from 16% in 1950 to 26% in 1990.

On the other hand, in the period of rapid economic growth most prefectures in which the non-major urban areas are located experienced a decrease in population. In addition, of the 3,246 municipalities in the country, the percentage experiencing a decrease in population rose at an accelerating pace from 46% in the 1975-80 period to 48% in the 1980-85 period and 64% in the 1985-90 period, indicating that depopulation spread in provincial areas.

To deal with this concentration of the population in the major urban areas and the depopulation of provincial areas, the government has traditionally adopted policies aiming at correcting the imbalance in the distribution of population and promoting a well-balanced development of the national land. The National Comprehensive Development Plan of 1962, the New National Comprehensive Development Plan of 1969, the Third National Comprehensive Development Plan of 1979, and the Fourth National Comprehensive Development Plan of 1987 all aimed at dispersing the population, under the slogans "pivotal area development strategy", "large-scale project implementation strategy", "strategy for developing self-sustained regions" and "multi-polar dispersion type development strategy", respectively. However, in actuality the trend toward the concentration of the population in major urban areas and particularly in the Tokyo area continued.

The concentration of the population in the Tokyo area gives rise to such disadvantages to daily life and problems due to overpopulation as a surge in land prices, difficulties in finding housing, longer commuting distances and traffic jams. However, it could be said that one reason that the population continues to concentrate in the Tokyo area is that the advantages to the accumulation of population outweigh the difficulties of overpopulation. For companies, establishing offices in the Tokyo area allows them to have relations with the central government and other companies as well as international negotiations more smoothly, and for individuals the large city offers the advantages of more employment opportunities, higher salaries, an abundance and variety of information, and diverse entertainment services.

The Japanese government did have clear population policy objectives to deal with the problems of regional overpopulation and depopulation, that is, the dispersion of the population through the promotion of regional development, but the results were, contrary to its expectation, the increased concentration of the population in major urban areas, particularly in the Tokyo area, so the policy of dispersion of the population was not necessarily effective. However, if the government had not adopted such policies, the population may have concentrated to an even greater extent in the major urban areas, and the idea that in a market economy based on democratic principles there are limits to population redistribution plans based on policies by the government to guide industry may hold true.

4 Policies for Dealing with the Aging of the Population

At the end of the 1950s, Japan accomplished fertility transition and started a process of aging. The percentage of the young population (the population under the age of 15) decreased abruptly from 35% in 1950 with the drop in the number of births, and became 18% in 1990. On the other hand, the percentage of the population of working age (15 to 64) increased

greatly when the baby boom generation entered this bracket, growing from 60% in 1950 to 70% in 1990. The percentage of the aged population (65 and over) has been increasing steadily from 5% in 1950 to over 7% in 1970 and 12% in 1990.

In Japan, the aging issue began receiving social attention in the 1970s, but from about 1970 through today, the percentage of the young population has been lower in Japan than in developing countries and the percentage of the aged population has not been higher than other developed countries. In Japan the percentage of the population of working age is higher than anywhere in the world, so the dependent population burden is among the lowest. Thus, presently Japan's population structure is economically ideal.

However, the reason that the problem of aging began receiving attention earlier on in Japan is that the post-war fertility transition was accomplished very quickly, and since the death rate of the population of middle and advanced age decreased greatly, aging has progressed extremely rapidly. Furthermore, according to future population projections announced by the government, it is clear that the aged population will increase in number and percentage at a rate never before seen anywhere in the world. According to the latest projections conducted by the Institute of Population Problems, the Ministry of Health and Welfare, in the 35-year period from 1990 to 2025, the total population will only grow by 1.8%, but the aged population will more than double from 15 to 32 million, and the percentage of the aged population will grow from 12% to 26%.

In Japan, there are three components of the social security system which guarantee the livelihood of the elderly: the public pension system, the public medical insurance system, and welfare policies for the aged. The public pension system came to apply to all citizens in 1961, and currently over 90% of all elderly households receive public pensions. Also, pensions account for an average of 50% of the income of aged households. This public pension system has become essential for guaranteeing the income of the elderly, but as aging progresses, the burden of expenses for pensions is also increasing steadily. The burden of pensions with respect to national income was 2.4% in 1970, but 6.6% in 1990. According to one calculation, as aging progresses in the future, the burden for pensions will continue to increase and will reach 10.5% of national income by 2010.

The Japanese government is now trying to revise the public pension system so that the burden for pension insurance on the working population will not become excessive but so that appropriate benefit levels can be maintained even in an ultra-aged society. One promising proposal calls for increasing the age at which pensions can first be received (from the current 60 to 65).

Secondly, under a public medical insurance system covering all citizens, all citizens can receive modern medical treatment services at low cost. However, national medical expenses have increased greatly since 1970, and the percentage with respect to the national income has

also increased from 5.2% in 1975 to 6.2% in 1989. The growth in medical expenses of the elderly is particularly marked, increasing in its share of total national medical expenses from 13.4% in 1975 to 28.2% in 1989, and according to one prediction will reach 37% in 2000. This increase in medical expenses of the elderly is due to the increase in the aged population itself and also to the fact that per capita medical expenses are far higher for the elderly than for young people (5.2 times higher in 1990). Thus, revised programs are being studied to make payments and burdens fairer in order to stabilize the public medical insurance system over the long term in view of the advent of the ultra-aged society in the 21st century.

Thirdly, with aging the number of elderly people requiring care is rapidly increasing. As of 1990, the number of bedridden elderly persons is estimated at approximately 400,000, but this number is expected to triple to 1.2 million by 2025. Furthermore, the number of people with senile dementia is expected to more than triple from 800,000 in 1990 to 2.6 million in 2025. This increase in the number of aged people requiring care is creating a growing need for more and improved hospitals, old people's homes and other such facilities, as well as for outside assistance for families caring for elderly people at home.

According to various public opinion surveys on the issue of the elderly, many people see the largest problem in an aged society as the problem of care. This is likely due to the fact that while the need for care is increasing, the function of the family for offering care is decreasing with the trend toward nuclear family households and the rise in women's labor force participation. The 10-year Strategy for the Promotion of the Health and Welfare of the Elderly or so-called "Gold Plan" begun by the government in 1990 attempts to deal with the problem of care, which is expected to become increasingly pressing in the future. The plan calls for establishing facilities such as homes for old people requiring special care and health facilities for the elderly, strengthening the system of support for home care through increasing the number of home helpers and centers for short stays, day services and home care assistance, and decreasing the very number of bedridden aged people through more prevention and rehabilitation facilities and personnel.

5 Policies for Dealing with the Ultra-low Birth Rate and the Labor Shortage

Now, after the period of rapid economic growth, Japan is changing from a country of emigration to a country of immigration. The number of foreigners entering Japan was only 810,000 in 1970, but increased to 1.33 million in 1980 and 3.9 million in 1991. Also, the number of legal foreign residents in Japan increased from 750,000 in 1974 (including

640,000 permanent residents from directly after World War II and their descendants) to 1.28 million in 1992. The number of foreigners residing illegally in Japan is also increasing rapidly, and was estimated at 290,000 in 1992. This increase in the influx of foreigners is due in part to the internationalization of the economy, including the increase in Japanese investments overseas and the influx of foreign companies to Japan, but such factors as the yen which grew dramatically stronger in the 1980s and the gap in income between Japan and neighboring Asian countries and Latin American countries were also major contributors to this influx. In addition, as the society became affluent and levels of education increased, Japanese young people have come to increasingly shun what are called "3K" jobs (jobs which are "Kitsui" (difficult), "Kitanai" (dirty) or "Kiken" (dangerous)), so there was a growing demand for unskilled or semi-skilled workers.

At the end of the 1980s, as the number of foreigners living and working in Japan illegally grew, the question of whether foreign workers should be allowed to work legally in areas of unskilled labor became an important political issue and was debated within the government, in industrial and academic circles and by the mass media. Soon, the prevailing public opinion came to be that the employment of foreigners in unskilled labor should be admitted conditionally. In other words, the public was against admitting foreigners permanently as permanent immigrants, but was in favor of accepting them for a specific period of time (for example, two or three years), according to the trends in the labor market. Furthermore, according to recent public opinion surveys, there are extremely few people in favor of admitting foreigners as a population policy for dealing with the ultra-aged society and the decrease in the population in the 21st century.

In answer to the increased demand for foreign workers, in June, 1990, the Japanese government revised the "Immigration Control and Refugee Recognition Law". This clarified qualifications for the admission of foreign workers, but did not admit long-term stays for foreigners working in unskilled labor areas, with the exception of people of Japanese descent. Since the country entered the 1990s and a period of long-term economic recession, it seems that policy discussions on this subject have become less pressing, but the government is now studying whether or not to introduce a practical training system by which foreigners who have come to Japan as company trainees can work for a specific period of time after the end of their training.

At about the same time as the issue of the admission of foreign workers, the low birth rate also became a political issue. The birth rate had been below the population replacement level since the middle of the 1970, but it was still relatively high among developed countries. Beginning in the mid 1980s, however, the birth rate began to drop rapidly. When the total fertility rate reached 1.57 in 1989, the term "1.57 shock" became popular in the mass media. The birth rate continued to decrease, and the TFR was at 1.50 in 1992.

Various public opinion polls have been taken concerning this drop in the birth rate. Overall, they show that most citizens view this as a factor for a shortage of labor in the future and the acceleration of the aging of society. Policy-wise, these polls show that the public is against clearly pro-natalist policies by the government, but it is not for a laissez-faire policy either. Rather, it wants the government to improve the social and economic environment for marriage and child raising, in other words to strengthen family policies.

As in former West Germany and Italy, the reaction of the Japanese public against direct pro-natalist policies is thought to derive from the antipathy towards the policies for increasing the population adopted during the war, which were linked to expansionism. Taking into account this public sentiment, in 1990 the government announced a memorandum ("Creating a social and economic environment for bearing and raising healthy children") stating that it should aim at improving the environment for raising children but without interfering in any way in the freedom of choice of individuals to marry or have children. Concretely, this memorandum calls for: (1) the reduction of working hours, assistance for allowing people to both work and care for their families (improvements to the childcare leave system, the system for the reemployment of women, nursery services, etc.) and the promotion of the participation of men in family activities, for establishing a balance between family life and work life; (2) improvements to the housing environment (alleviation of the concentration of the population in Tokyo, etc.) and improvements in children's playing environment, for improving the living environment; and (3) assuring a more genial educational environment, decreasing the economic burden of raising children (improvements of child allowances and scholarships, etc.) and establishing a system for consultations on child raising, for supporting family life and child raising.

Following to the lines of this basic strategy, in 1990 a system recognizing the right of workers (either the mother or father) to childcare leaves for a period of 1 year after birth was enacted into law, the child allowance law was improved (increasing the child allowance and applying it to all children under the age of 3), and a Child Care Environment Office was established within the Ministry of Health and Welfare's Children and Families Bureau with the objective of raising public awareness of these issues. However, as of now the level of child allowances in Japan is extremely low compared to major Western European countries and the period of their application is also short. Furthermore, the childcare leave system offers no compensation for income during the period of leave, and national subsidies for university education are extremely low. The reduction of working hours, land and housing measures, and the correction of the problem of the concentration of the population in Tokyo are all general policy objectives whose significance is not limited to improving the environment for raising children. But these are major issues which will take some time to resolve.

The extent to which Japan's family policies will be strengthened depend in part upon how long the low birth rate continues, but also on how far women advance in society. The longer the low birth rate continues, the stronger the calls will become for strengthening family policies, and the more common continuous employment of women becomes, the greater the need will become for assistance for allowing people to both work and care for their families. As can be seen from the example of Western European countries, however, strengthening family policies is another factor along with aging which increases expenses for social security programs in the future, and the extent to which citizens are prepared to accept the burden of expenses for strengthening family policies will be an important political issue in the future.

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Chapter Six

THE MUTUAL RELATIONSHIP BETWEEN POPULATION, DEVELOPMENT AND THE ENVIRONMENT

- TOWARD THE DEVELOPMENT OF AN ASIAN MODEL -

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1 The World's Population from a Long-term Perspective

(1) A new awareness of the population explosion

After World War II, the world's population entered a stage of so-called explosive growth. However, the significance of this explosive growth was not necessarily fully understood. First, such growth had never been experienced before the world war II. Somewhat in exaggeration, "The explosive growth of the world population is the event which deserves most attention among all events on this tiny Earth over the past billion years" (P.R. Ehrlich and A.H. Ehrlich, 1970). In 1972, two years after Ehrlich, "The Limits to Growth" (Meadows et. al.), a report which received worldwide attention, devoted nearly half of its space to an exhaustive description of the startling effects of the geometric growth of the population. This report illustrated critical implication of the momentous event suggested by Ehrlich.

Since then, many specialists as well as the United Nations have stressed the critical effect of the population explosion on humanity and the urgent need for measures to deal with it. Strategies for curbing population growth have in fact been taken in many developing countries with extremely high growth rates, and the United Nations has increased assistance for such strategies as far as possible. As a result, the average annual growth rate of the world's population decreased to 1.74% in the 1985-1990 period after having reached a peak of 2.06% in the latter half of the 1960s.

However, even if we consider optimistically the population of developing regions which account for nearly 80% of the world's population, the population is expected to grow at an annual rate of 2% or greater until the end of the century, and still be growing at a rate of 1.2% in the 2020's. Because of the large size of the world population, an increase of over 93 million people per year over the decade of the 1990s is unavoidable. We must also consider such conditions as the massiveness of the total world population, the future effect of "population inertia" brought about by the high birth rate of the past, and the fact that persistent family planning by hundreds of millions of individual couples will be needed in order to curb population growth. In other words, policies must be established towards specific goals as soon as possible in order to have a long-term future effect. However, the real world is entangled in conflicts for partial interests and clashes for power by different ethnic groups, religions and nations and does not seem to even be considering the destruction of all humanity. One U.S. scholar calls the increasing disorder of today's world the "clash of civilization" (Huntington, 1993). We can say that this is an age in which many different cultures are asserting their identity.

Here we will discuss the urgent need for efforts to prevent the "unacceptable option" of catastrophe by studying future perspectives of the world population. (See curve (3), Figure 1 (b).)

(2) At the current population reproductive level, the world population will reach 11 billion in 2025, 21.7 billion in 2050

The United Nations suggests four scenarios in its 1992 long-range projections of the world population (Table 1). These hypotheses are based on different total fertility rates (TFR): 2.06 (medium), 2.50 (high), 1.70 (low) and the current 4.30 (constant-fertility). The average life expectancy at birth is used for the mortality index, and the same condition applies to all cases.

With the medium projection, considered to be the most likely, the world population will reach 8.5 billion in 2025, an increase of more than two times 2 billion the population of 4.08 billion in 1975, fifty years earlier. In 2050, the world population will be over 10 billion, roughly twice the population of 5.29 billion in 1990, sixty years earlier. However, this medium projection assumes the widespread implementation of substantially strong family planning policies and programs. If population growth is not curbed as expected, the population will grow as estimated by the high projection, according to which the world population will surpass 9.4 billion in 2025, 940 million higher than the medium projection, and exceed 10 billion in 2030.

The year the world population will reach 10 billion is 2050 according to the medium projection, but 2030, 20 years earlier, according to the high projection. When seriously considering the explosion of the world population and the catastrophe of humanity, for our present purposes it would be safer and practical to elucidate the conditions for the survival of humanity bearing in mind this figure of 10 billion.

How formidable the current fertility level of the world population will be, is clearly demonstrated by the projection of "constant-fertility" scenario. According to this prediction, the world population will reach 21.2 billion in 2050, twice the figure for the medium projection, then exceed 100 billion in 2100, and reach the astronomical figure of nearly 700 billion in 2150. According to the medium projection, the world population will reach a stable level in about 2150 at 11.5 billion. With the "unchanged" scenario, it will be 60 times this number in 2150.

Of course, it is unrealistic that the world population will reach the astronomical numbers given in the "constant-fertility" hypothesis, but this hypothesis helps us to understand that the current level of population reproduction of the world population is extremely high and cannot be sustained. It is natural that "The Limits to Growth" reiterated the threat of this growth of geometric progression.

The effects of a world population of 10 billion on the world's resources can be easily understood when we look at calculations for the amount of time in which the world's reserves of resources would be depleted at the rate of consumption of the United States: copper would be depleted in four and a half years, zinc in three and a half years and petroleum in four and a half years (UNFPA, 1992).

2 The Impact of Population Growth - the Ehrlich Equation

In 1963, the First Asian Population Conference held at New Delhi, India pointed out that an extremely high population growth rate impedes economic growth and slows down modernization and stressed the need for controlling population growth. However, in theory there were both those who viewed this positively and negatively, and many doubts were expressed on the effectiveness of family planning policies and programs. There were even some who asserted that economic development is the best family planning policy.

Today, however, there are very few who assert that a high population growth rate is favorable for economic growth. There is a widespread perception that both in theory and in policy alleviating a high population growth rate allows for an increase in the rate of savings and investments and contributes to economic growth.

The equation I = PAT proposed by Paul R. Ehrlich and Anne H. Ehrlich of Stanford University describes the three factors which have an impact (I) on the environment in a clear and easily understandable fashion (Ehrlich, 1990).

The first factor, P, is of course the population. The second, A, is the amount of resources consumed per person, and the third, T, is technology which provokes the destruction of the environment. What is important here is that whatever the values of A and T, the higher the population, the greater the burden on the environment. From this we can see that in developing countries where economic advancement is lagging, the impact on the environment is greater simply because of the large population, and that in developed countries where the population is small, the impact on the environment is great because the per capita multipliers A and T are extremely high. The impact of the population is determined by its size and its growth rate.

Ehrlich offers a simple example to describe the mutual effect of factors P, A and T. Say the world succeeds in decreasing the per capita consumption of resources (A) by 5% and also in decreasing the damage to the environment by 5% through improvements in technology (T). As a result, the impact on the environment is decreased 10% for the humanity as a whole, if the population does not grow. However, the population continues to grow. Thus, at the current annual rate of growth of the world's population (1.7%), the overall impact will return

to its original level in about 6 years.

Both developing and developed countries, in other words all of humanity, are responsible for the impact on the environment. Put another way, the greatest responsibility for the deterioration of the world's environment lies with the world's billion richest and billion poorest people. Poverty forces people to act in ways which destroy the environment to protect their livelihood, and the impoverished have an extremely high fertility, so the population growth rate among them is high. The population of the poorest category was under 500 million in 1975, but is said to have recently reached 1.2 billion (UNFPA, 1991). The population growth rate of the richest developed countries has now dropped to an annual rate of 0.5%, but the high standard of living spurs on the destruction of the environment on many levels. Developed countries, which only account for 22% of the world's population of 5.5 billion (1992), are the greatest consumers of the earth's resources. They account for 75% of the entire world's energy consumption and 79% of commercial fuel consumption, and consume 85% of all lumber and 72% of all steel produced. They are also responsible for three fourths of the emissions of carbon dioxide, which accounts for half of the greenhouse effect (UNFPA, 1991).

Ehrlich's equation considers mainly the impact on the environment, but is essentially similar to the 1972 "The Limits to Growth", which warned of a crisis to humanity due to environment destruction and food shortages caused by population growth and continued economic development based on the manufacturing industries.

However, here let us particularly emphasize that the roots of the various problems involved in today's global crisis is the population. Global warming, acid rain, the destruction of the ozone layer, the deterioration of the soil, the devastation of the tropical rain forests are all related to the size and increase of the population. The massive population and its explosive growth are intimately related to all major factors which will bring about the catastrophe foreseen in the future (Ehrlich, 1990, p. 18).

The annual population growth rate was not higher than 1% in developed countries. It suggests that the annual growth rate of 1% is quite high. However, if the world population had grown at a rate of 1% from the 2.52 billion population of 1950, the world population would have reached 5 billion in 2020. Actually, however, it reached 5 billion in 1987, 33 years faster. With an annual growth rate of 1%, the world population would reach 10 billion by 2090. Current projections, however, expect it to reach this figure by 2050, 40 years faster. Thus, an annual growth rate of 1% would provide 30 or 40 years more time. An annual growth rate of 1% is quite high, even compared to the growth rate of 0.8% in the first half of this century and 0.5% for the 19th century. According to the United Nations' medium prediction, the growth rate will continue to decrease and reach the level of 1% in the 2020-2025 period. With the low variant projection prediction, however, the growth rate will

decrease in accelerated fashion to 0.67% in the 2020-2025 period. The world population at this time will be 7.6 billion. For the medium projection it will be 10 billion. If a population of 10 billion is not a level at which humanity can survive, the only choice left for humankind will be around the level shown by the low projection.

3 The Relationship Between Population and Development in Asia

(1) Japan's pioneering experience in Asia

Japan in Asia was the first country outside of the Western cultural sphere to achieve a Western type demographic transition. However, Japan reached the final stage of demographic transition, characterized by a low birth and low death rate, in much shorter time than in Western experience. This evidences that the phenomenon of demographic transition is not specific and limited to the Western culture. What deserves attention in Japan's experience is the fact that in the extreme poverty following World War II, fertility dropped abruptly after a short period of baby boom, and that Japan also achieved a high level of economic development virtually at the same time as the beginning of the drop in fertility.

In the Western experience, the decline in fertility begins as a result of the process of modernization centered around economic development, but with a substantial time lag between the two. The Western hypothesis which holds that the drop in fertility is a result or product of modernization does not necessarily apply to Japan. In other words, Japan's experience brought a new issue to the theory of transition by which demographic transition does not occur without being preceded by the process of modernization.

This suggested one answer to the basic question of whether or not family planning policies for reducing fertility have an effect in developing countries whose economies have not yet taken off. At least, for some other Asian countries now in the process of developing, the fact that Japan was able to curb its population growth and achieve high economic growth in a short amount of time despite having lost the very foundations of its economy in the war and being in a state of utter poverty is a new example which offers hopes for the possibility of similar development.

Of course, it goes without saying that other Asian countries required a substantial preparatory period in order to achieve the same sort of demographic and economic transition. For example, for the decrease in fertility in Japan, the crude birth rate of 34 in 1947 had dropped in half to 17 ten years later in 1957. It is extremely interesting that this extraordinary halving of the birth rate was also achieved in other countries and regions which can be considered as belonging to the Chinese cultural sphere (Kuroda, 1990). For example, after Japan, this reduction in half began earliest in Hong Kong, where the crude birth rate was 38 in

the first half of the 1950s but had dropped to 19 by the second half of the 1970s. Taiwan followed 14 years after Japan, with its crude birth rate beginning to drop from 38 in 1961 and reaching 19 in 1985. At about the same time as Taiwan, the birth rate began dropping in Singapore, where it was reduced in half in 20 years. In China, the crude birth rate began dropping in 1969, 22 years after Japan, from 34, and had fallen to 18 in 1979, ten years later.

The time required for the birth rate to be reduced by half was 10 years in Japan, 10 years in China, 20 years in Singapore, 24 years in Taiwan and 25 years in Hong Kong. Though there are differences in the time at which the drop in the birth rate began and the speed of the decrease in the different countries and regions, it seems justifiable to say that Japan's fertility transition was an effective precedent which played a guiding role.

The above countries and regions belong to what is called the Confucian cultural sphere. They have common cultural backgrounds to which new reproductive behavior and concepts can spread easily (Cho, 1993).

We should note that the demographic transition in the Confucian cultural sphere is beginning to spread to other neighboring Southeast Asian countries, including Thailand, Malaysia and Indonesia.

(2) The demographic transition index and economic development

As we said in the previous section, the process of demographic transition in Asia differs greatly from country to country and region to region. The level and speed of demographic transition differs in a way closely corresponding to level and stage of economic development. This fact has important international significance, as will be described later.

An interesting index expressing the degree of advancement of the demographic transition process is the demographic transition index. This index was proposed by Bogue and developed by Cho (Bogue, 1964 and Cho, 1984).

The demographic transition index indicates the distance which the birth and death rates have advanced from their postulated maxims and minims. The total fertility rate (TFR) for the birth rate and the average life expectancy at birth (e_0) for the death rate are used. It allocates 0.5 points when the TFR has reached less than replacement level and 0.5 points when the average life expectancy has reached 79 years for both sexes combined. Thus, in countries where the births and deaths have reached these levels, the demographic transition index is $0.5 + 0.5 = 1.0$, indicating that demographic transition has been completed. If these levels have not been reached, the demographic transition index is calculated according to the extent of decrease of the TFR and extent of increase of the average life expectancy. For the formula, see the remarks for Table 2.

Table 2 shows the demographic transition index, the TFR and average life expectancy at birth (the factors in the demographic transition index), and the per capita GNP (an index of the

degree of economic development) for East and Southeast Asian countries and regions. The countries and regions are arranged in order according to the degree of advancement of demographic transition, beginning with Japan, which has already completed the process (1.0). Hong Kong and Taiwan in East Asia and Singapore in Southeast Asia have levels of 0.9 or higher, indicating that they are in the final stage of demographic transition and that the process is nearly completed. Mongolia in East Asia is at the 50% level, and the Philippines and Vietnam in Southeast Asia are at the 60% level, indicating that they are in the initial stage of demographic transition. It is extremely interesting to note that perfect tiered structure is shown from those countries and regions in the initial stage of demographic transition to those which have completed or nearly completed the process. When we examine the TFR as well, we can see at a glance that the countries and regions are arranged in order from those with an extremely high TFR of 4 or 5 to those which have already dipped below the replacement level. The same is true of the average life expectancy at birth, which runs from a short 60 years to 79 years.

Since the demographic transition index is composed of the birth and death rates, it also determines the age structure. In countries where the total fertility rate is extremely low and the average life expectancy at birth is extremely long, the percentage of children in the total population is extremely low, and the percentage of the aged population is high. In other words, there is an aging of the population structure. Inversely, in countries where the total fertility rate is high and the average life expectancy at birth is short, the percentage of children in the total population is extremely high, and the percentage of the aged population is extremely low. For example, in Japan, which has completed the demographic transition, the percentage of the child population (ages 0 to 14) is 18.2% and the percentage of the aged population (aged 65 and above) is 12.1% (as of 1990), whereas in the Philippines, which is in the initial stage of demographic transition, the child population accounts for 40% of the total population and the aged population 3%. Thus, the aging of the population is proceeding in Japan, whereas the Philippines is characterized by a young population with many children.

Next, let us examine the relationship between the demographic transition index and economic development. The final column in Table 2 indicates the per capita GNP, one important indicator of the extent of economic growth or the standard of living. In virtually all cases we see that the demographic transition index is high where the per capita GNP is high. Where the rate of economic growth and the level of per capita income is high, both the birth and death rates are low and the demographic transition index is high. However, note that in East Asia, China's demographic transition index is at approximately the same level as South Korea's, despite the fact that China's per capita GNP is an extremely low US$ 370, less than one tenth that of South Korea. We should consider that in China, with its massive population, the majority of the population (70%) is in rural areas, and also keep in mind the problem of

statistical techniques used in calculating the GNP. Furthermore, the figure of US$ 370 is likely too low, since China maintains a double-digit economic growth rate. However, we should also consider the direct effect of the remarkable advancement of family planning policies in bringing about a decrease in fertility. China's experience deserves attention in that it suggests high probability of achieving fertility transition without waiting for very high economic development.

We can see another contradiction in the Southeast Asian group in that Thailand has a higher demographic transition index than Malaysia, though Thai per capita GNP is almost US$ 1000 lower than Malaysia. However, we can also understand this as demonstrating that Malaysia's easing of family planning policies has had a strong effect in its high total fertility rate (3.5, compared to 2.2 in Thailand).

In any case, the sequential, tiered structure of the stages of demographic transition in East and Southeast Asia and the corresponding diversity of economic development signify the existence of advantages and disadvantages which can mutually complement each other. Thus, it should be possible for these countries to promote the process of demographic transition and complement each other economically as well through a mutual exchange of information, thereby contributing to the development of both the individual countries and the region as a whole. This infers not simply coexistent cooperation, but an overall development strategy based on a relationship of symbiotic cooperation with the individual countries acting as one entity.

4 The Development of a New Asian Model and Japan

Asia is facing a new period of transition. Since second half of the 1970s, the 21st century has been named the "Asian Age" or the "Pacific Age". This is of course based on the remarkable economic development of the Asian countries in the West Pacific area, centering on Japan. In fact, however, an international, virtual attention to Asia and the Pacific emerged only after 1983 when Pacific trade surpassed Atlantic trade. Furthermore, the APEC (Asia/ Pacific Economic Cooperation) conference which was held in Seattle in November, 1993, under United States' sponsorship reflected the United States' strong interest in the strong economic potentiality of Asia.

Ironically, however, the Seattle Conference was held at a time when the United States was in a furor of domestic debate over NAFTA, the North American Free Trade Agreement between the United States, Canada and Mexico, which seeks to reinforce the United States' regional cooperation.

Such changes can be said to be characteristic of an age of regional economic blocks.

The overall discussion in the context of the name of the "Asian Age" or the "Pacific Age" is now developing into local and regional issues. However, the trend towards multinational regional cooperation in the world is exemplified by ASEAN and the EC, which were already formed in 1967 respectively.

In particular, with the dismantling of the Cold War structure, many Asian countries which in general are not blessed with natural resources and face impediments to modernization such as underdeveloped scientific technology and high population growth rates, have also come to feel an acute need for forming some sort of regional cooperation system in order to strengthen mutual economic complementarity. A variety of different concepts and ideas are being proposed and explored, including those for an East Asian economic zone, a Japan Sea economic zone, Yellow Sea economic zone, Southern China economic zone, and Thai baht economic zone. There is also increasing interest in the idea of an EAEC (East Asian Economic Conference) as proposed by Malaysia's prime minister.

However, the various concepts which are gaining interest in Asia still have the strong character of multi-polar regional concepts within Asia. At the same time, such concepts are characterized by the fact that they are founded on a structure of mutual complementarity which has evolved in the diverse stages of demographic and economic development of Asia's populations and economies. In addition, there is an Asian culture and Asian sense of values at their root. This suggests that it will not be easy to arrive at quick agreement on regional unification with societies having Western or American style cultures and values.

Further promoting the advancement and increasing the standard of living of the population of Asia, which has displayed a new, spontaneous, diverse evolution open to the outside, will not only benefit Asia but also eventually act as an important motive force for the revitalization of the entire world.

To achieve this, it is particularly necessary to conduct research and development for the establishment of a new Asian model suited to the experience of Asia, which has evolved under a tiered structure of demographic transition and economic development. Devising an Asian model founded on a new structure of development never experienced before World War II or in the West will contribute to accelerating the future modernization of the remarkably diverse Asian countries.

Japan achieved high economic growth in a relatively short period of time despite such dreadful conditions as extreme poverty, the utter destruction of its economy, the lack of resources and an excessive population, and has also effectively devised measures to deal with the resulting pollution and environmental problems. Research on the Asian model should be developed based on the experience of Japan and taking into consideration the many different, diversified experiences in the demographic and economic development of Asia. Japan should actively assist and cooperate with the promotion of such research by the many Asian policy-makers and specialists in demographic and economic issues.

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Table 1 Future Projections of the World Population (1950 to 2150)

(Units: millions)

Year	Medium	High	Low	Constant-Fertility
1950	2,516	2,516	2,516	2,516
1975	4,079	4,079	4,079	4,079
1990	5,292	5,327	5,262	5,311
2000	6,261	6,420	6,093	6,463
2025	8,504	9,444	7,591	10,978
2050	10,019	12,506	7,813	21,161
2075	10,841	15,708	7,082	46,261
2100	11,186	19,156	6,009	109,405
2125	11,390	23,191	5,071	271,138
2150	11,543	28,025	4,299	694,213

Source: United Nations: Long-range World Population Projections, Two Centuries of Population Growth, 1950 - 2150, New York, 1992, p. 14.

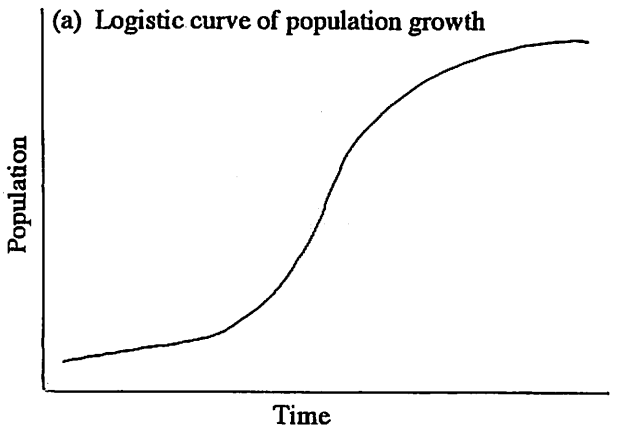
Table 2 Demographic Transition Index and Per Capita GNP of East and Southeast Asian Countries

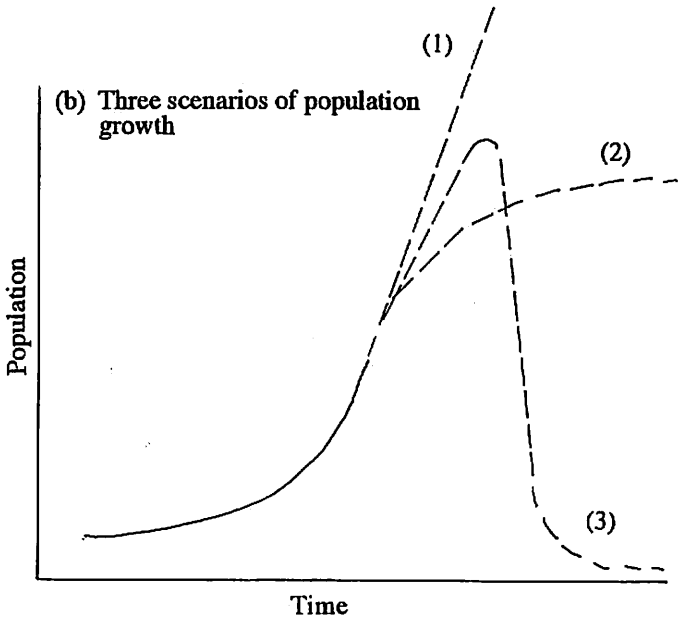
Country	Demographic transition index	Total fertility rate	Average life expectancy at birth	Per capita GNP (US$)
East Asia				
Japan	1.00	1.5	79.0	25,430
Hong Kong	0.99	1.2	77.9	11,490
Taiwan	0.93	1.7	73.8	7,332
South Korea	0.88	1.8	70.6	5,400
China	0.88	2.2	70.9	370
North Korea	0.85	2.4	70.7	--
Mongolia	0.54	4.7	63.4	--
Southeast Asia				
Singapore	0.90	1.8	74.5	11,160
Thailand	0.85	2.2	68.1	1,420
Malaysia	0.75	3.5	70.7	2,320
Indonesia	0.68	3.0	60.1	570
Philippines	0.63	4.0	64.9	730
Vietnam	0.63	3.9	63.9	--

Source: 1992 ESCAP Population Data Sheet. For per capita GNPs, UNFPA, the State of World Population, 1993. For Taiwan, from the 1991 Statistical Yearbook of the Republic of China (figure for 1989).

Remarks: The formula to calculate demographic transition index is as follows:
$DTI = 0.5\,[(7.6 - TFR)/5.5] + 0.5\,[1 - (79 - e_0)/36]$

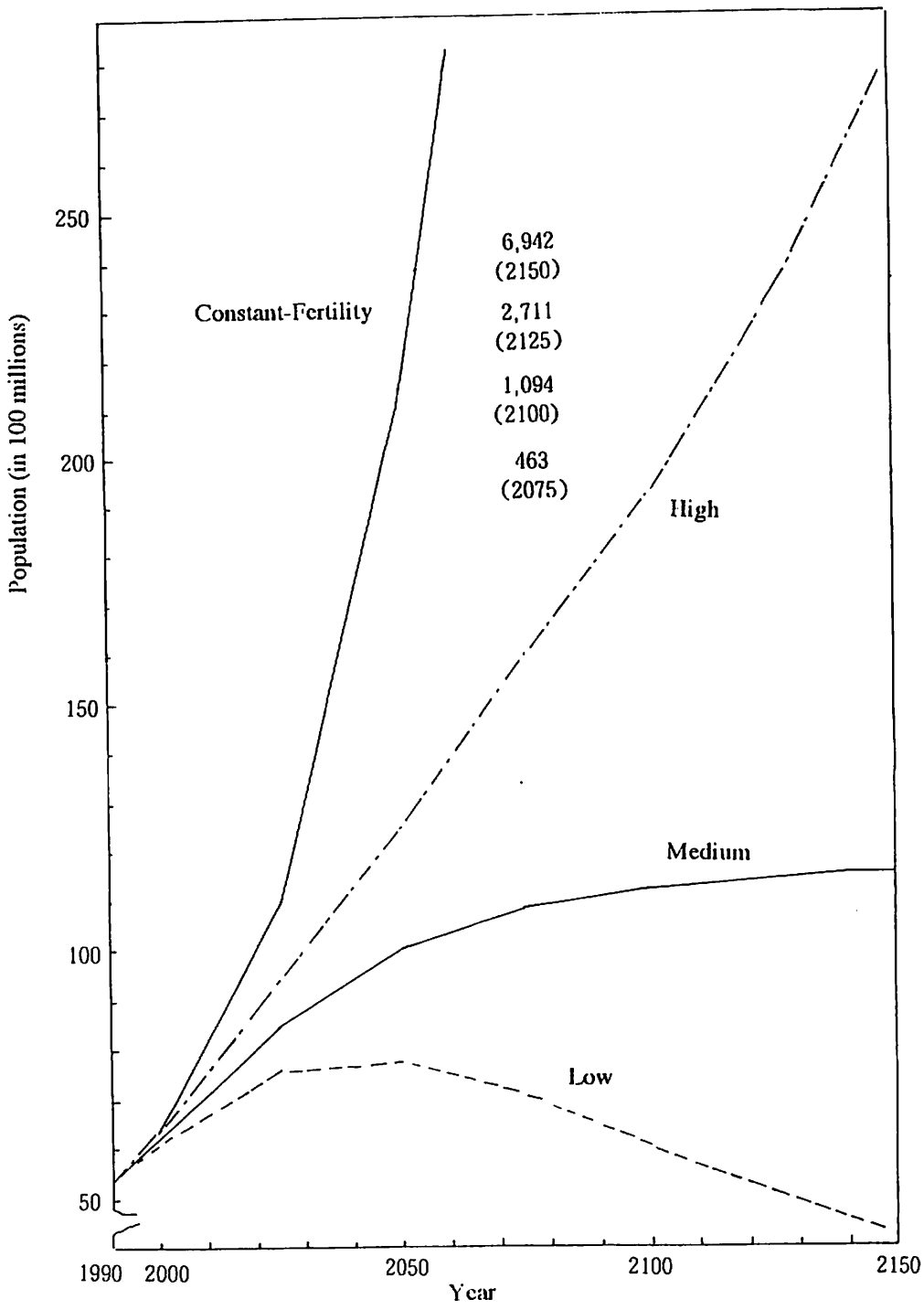
Figure 1 Population Growth Curves





Source: Jonas Salk: The Next Evolutionary Step in the Ascent of Man in the Cosmos, Leonardo, Vol. 18, No. 4, 1985, p. 238.

Figure 2 Projected Population of the World, 1990 - 2150: Medium, High, Low and Constant-Fertility



Chapter Seven

STATISTICAL DATA ON POPULATION AND DEVELOPMENT

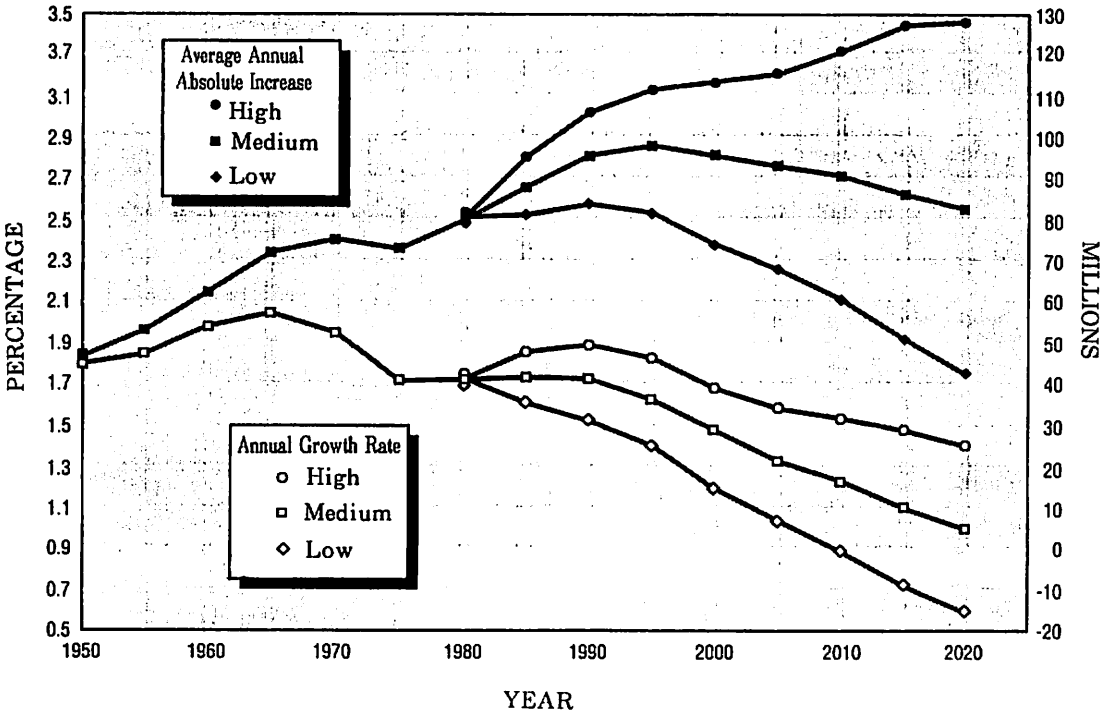
Estimated and Projected Population by Size by Region, 1950–2025

( ) %

Region	Population (millions)				
	1950	1970	1990	200	2025
World Total	2,516 (100.0)	3,698 (100.0)	5,292 (100.0)	6,261 (100.0)	8,504 (100.0)
Industrialized countries	832 (33.1)	1,049 (28.4)	1,207 (22.8)	1,264 (20.2)	1,354 (15.9)
Developing countries	1,684 (66.9)	2,649 (71.6)	4,086 (77.2)	4,997 (79.8)	7,150 (84.1)
Africa	222 (8.8)	362 (9.8)	642 (12.1)	867 (13.8)	1,597 (18.8)
North America	166 (6.6)	226 (6.1)	276 (5.2)	295 (4.7)	332 (3.9)
Latin America	166 (6.6)	286 (7.7)	448 (8.5)	538 (8.6)	757 (8.9)
Asia	1,377 (54.7)	2,102 (56.8)	3,113 (58.8)	3,713 (59.3)	4,912 (57.8)
Europe	393 (15.6)	460 (12.4)	498 (9.4)	510 (8.1)	515 (6.1)
Oceania	13 (0.5)	19 (0.5)	26 (0.5)	30 (0.5)	38 (0.4)
U.S.S.R.	180 (7.2)	243 (6.6)	289 (5.5)	308 (4.9)	352 (4.1)

Sauce) United Nations Population Division, *World Population Prospects 1990* (United Nations, New York 1991).

World Population Growth: Annual Growth Rates and Increments



Sauce) United Nations Population, *World Population Prospects 1990* (United Nations, New York 1991).

World's 20 Largest Urban Agglomerations, Ranked by Population Size in Millons, 1950–2000

1950			
Rank	Agglomeration	Country	Population (millions)
1	NEW YORK	UNITED STATES OF AMERICA	12.3
2	LONDON	UNITED KINGDOM	8.7
3	TOKYO	JAPAN	6.7
4	PARIS	FRANCE	5.4
5	SHANGHAI	CHINA	5.3
6	BUENOS AIRES	ARGENTINA	5.0
7	CHICAGO	UNITED STATES OF AMERICA	4.9
8	MOSCOW	USSR	4.8
9	CALCUTTA	INDIA	4.4
10	LOS ANGELES	UNITED STATES OF AMERICA	4.0
11	BEIJING	CHINA	3.9
12	OSAKA	JAPAN	3.8
13	MILAN	ITALY	3.6
14	MEXICO CITY	MEXICO	3.1
15	PHILADELPHIA	UNITED STATES OF AMERICA	2.9
16	BOMBAY	INDIA	2.9
17	RIO DE JANEIRO	BRAZIL	2.9
18	DETROIT	UNITED STATES OF AMERICA	2.8
19	NAPLES	ITALY	2.8
20	LENINGRAD	USSR	2.6

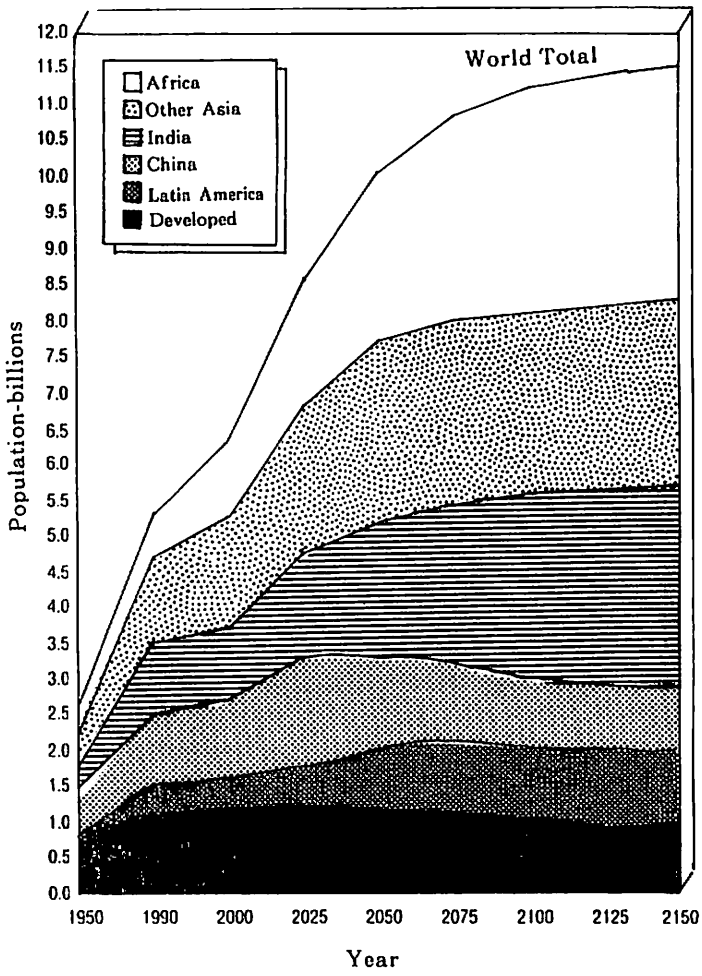
1970			
Rank	Agglomeration	Country	Population (millions)
1	NEW YORK	UNITED STATES OF AMERICA	16.2
2	TOKYO	JAPAN	14.9
3	SHANGHAI	CHINA	11.2
4	MEXICO CITY	MEXICO	9.4
5	LONDON	UNITED KINGDOM	8.6
6	BUENOS AIRES	ARGENTINA	8.4
7	LOS ANGELES	UNITED STATES OF AMERICA	8.4
8	PARIS	FRANCE	8.3
9	BEIJING	CHINA	8.1
10	SAO PAULO	BRAZIL	8.1
11	OSAKA	JAPAN	7.6
12	MOSCOW	USSR	7.1
13	RIO DE JANEIRO	BRAZIL	7.0
14	CALCUTTA	INDIA	6.9
15	CHICAGO	UNITED STATES OF AMERICA	6.7
16	BOMBAY	INDIA	5.8
17	MILAN	ITALY	5.5
18	CAIRO	EGYPT	5.3
19	SEOUL	REPUBLIC OF KOREA	5.3
20	TIANJN	CHINA	5.2

1990			
Rank	Agglomeration	Country	Population (millions)
1	MEXICO CITY	MEXICO	20.2
2	TOKYO	JAPAN	18.1
3	SAO PAULO	BRAZIL	17.4
4	NEW YORK	UNITED STATES OF AMERICA	16.2
5	SHANGHAI	CHINA	13.4
6	LOS ANGELES	UNITED STATES OF AMERICA	11.9
7	CALCUTTA	INDIA	11.8
8	BUENOS AIRES	ARGENTINA	11.5
9	BOMBAY	INDIA	11.2
10	SEOUL	REPUBLIC OF KOREA	11.0
11	BEIJING	CHINA	10.8
12	RIO DE JANEIRO	BRAZIL	10.7
13	TIANJIN	CHINA	9.4
14	JAKARTA	INDONESIA	9.3
15	CAIRO	EGYPT	9.0
16	MOSCOW	USSR	8.8
17	DELHI	INDIA	8.8
18	OSAKA	JAPAN	8.5
19	PARIS	FRANCE	8.5
20	METRO MANILA	PHILIPPINES	8.5

2000			
Rank	Agglomeration	Country	Population (millions)
1	MEXICO CITY	MEXICO	25.6
2	SAO PAULO	BRAZIL	22.1
3	TOKYO	JAPAN	19.0
4	SHANGHAI	CHINA	17.0
5	NEW YORK	UNITED STATES OF AMERICA	16.8
6	CALCUTTA	INDIA	15.7
7	BOMBAY	INDIA	15.4
8	BEIJING	CHINA	14.0
9	LOS ANGELES	UNITED STATES OF AMERICA	13.9
10	JAKARTA	INDONESIA	13.7
11	DELHI	INDIA	13.2
12	BUENOS AIRES	ARGENTINA	12.9
13	LAGOS	NIGERIA	12.9
14	TIANJIN	CHINA	12.7
15	SEOUL	REPUBLIC OF KOREA	12.7
16	RIO DE JANEIRO	BRAZIL	12.5
17	DHAKA	BANGLADESH	12.2
18	CAIRO	EGYPT	11.8
19	METRO MANILA	PHILIPPINES	11.8
20	KARACHI	PAKISTAN	11.7

Sauce) United Nations Population Division, *World Urbanization Prospects 1990.*

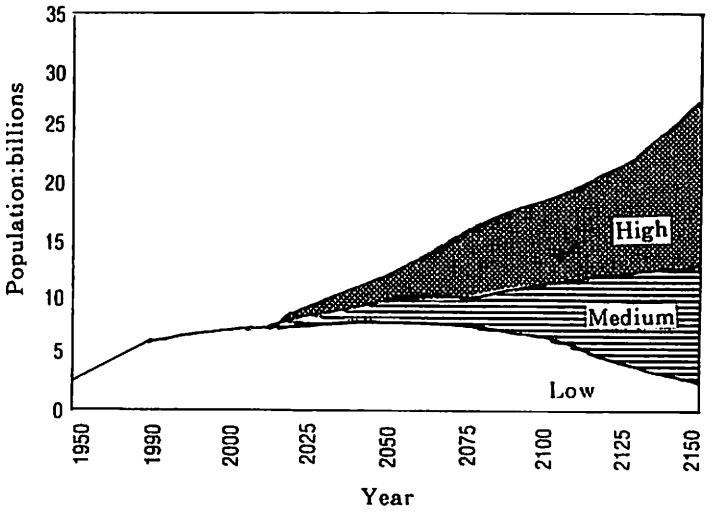
Population Projections by Region (medium variant)



The medium variant is considered the most likely.

Sauce) United Nations Population Division, *Long-range World Population Projections*, New York, 1992.

Alternative Futures: Population Projections to 2150



Sauce) United Nations, *Long-range World Population Projections*, New York, 1992.

Population Indicators

Country or Territory	Population (millions)		Average growth rate (%) 1990~95	Birth rate per 1,000 1990 ~ 95	Death rate per 1,000 1990~95	Life expectancy 1990~95	Infant mortality per 1,000 1990~95	Per cent urban 1992	Urban growth rate (%) 1990~95	Fertility rate per woman 1990~95
	1992	2025								
World Total	5,479.0	8,472.4	1.7	26	9	65	62	44	2.7	3.3
More Developed Regions	1,224.7	1,403.3	0.5	14	10	75	12	73	0.9	1.9
Less Developed Regions	4,254.3	7,069.2	2.0	29	9	62	69	35	3.7	3.6
ASIA	3,233.0	4,900.3	1.8	26	8	65	62	32	3.5	3.2
Eastern Asia	1,387.9	1,762.2	1.3	20	7	72	26	35	3.4	2.1
China	1,188.0	1,539.8	1.4	21	7	71	27	28	4.4	2.2
Dem. Peo. Rep. of Korea	22.6	33.3	1.9	24	5	71	24	60	2.4	2.4
Hong Kong	5.8	6.4	0.8	13	6	78	6	94	1.0	1.4
Japan	124.5	127.0	0.4	11	7	79	5	77	0.6	1.7
Mongolia	2.3	4.6	2.6	34	8	64	60	59	3.7	4.6
Republic of Korea	44.2	50.3	0.8	16	6	71	21	74	2.3	1.8
Southeastern Asia	461.5	715.6	1.9	28	8	63	55	30	3.8	3.4
Cambodia	8.8	16.7	2.5	39	10	51	116	12	4.6	4.5
Indonesia	191.2	283.3	1.8	27	22	63	65	30	4.3	3.1
Lao People's Dem. Rep.	4.5	9.4	3.0	45	14	51	97	20	6.3	6.7
Malaysia	18.8	31.3	2.4	29	17	71	14	45	4.3	3.6
Myanmar	43.7	75.6	2.1	33	10	58	81	25	3.3	4.2
Philippines	65.2	105.1	2.1	30	7	65	40	44	3.5	3.9
Singapore	2.8	3.3	1.0	16	13	74	8	100	1.0	1.7
Thailand	56.1	72.3	1.3	21	10	69	26	23	4.0	2.2
Viet Nam	69.5	117.0	2.0	29	6	64	36	20	2.9	3.9

Population Indicators (continued)

Country or Territory	Population (millions)		Average growth rate (%) 1990~95	Birth rate per 1,000 1990~95	Death rate per 1,000 1990~95	Life expectancy 1990~95	Infant mortality per 1,000 1990~95	Per cent urban 1992	Urban growth rate(%) 1990~95	Fertility rate per woman 1990~95
	1992	2025								
Southern Asia	1,244.3	2,135.8	2.2	32	10	59	90	27	3.5	4.3
Afghanistan	19.1	45.8	6.7	53	22	43	162	19	8.9	6.9
Bangladesh	119.3	223.3	2.4	38	14	53	108	18	6.0	4.7
Bhutan	1.6	3.4	2.3	40	17	48	129	6	6.2	5.9
India	879.5	1,393.9	1.9	29	10	60	88	26	2.9	3.9
Iran (Islamic Republic of)	61.6	144.6	2.7	40	7	67	40	58	4.0	6.0
Nepal	20.6	40.1	2.5	37	13	54	99	12	7.2	5.5
Pakistan	124.8	259.6	2.7	41	10	59	98	33	4.4	6.2
Sri Lanka	17.7	24.7	1.3	21	6	72	24	22	2.2	2.5
Western Asia	139.3	286.6	2.7	34	7	66	54	65	4.2	4.7
Iraq	19.3	46.3	3.2	39	7	66	58	73	4.0	5.7
Israel	5.1	8.1	4.7	21	7	77	9	92	5.0	2.9
Jordan	4.3	10.8	3.4	40	5	68	36	69	4.5	5.7
Kuwait	2.0	2.8	−5.8	28	2	75	14	93	−5.4	3.7
Lebanon	2.8	4.5	2.0	27	7	69	34	86	2.8	3.1
Oman	1.6	4.7	3.6	40	5	70	30	12	7.4	6.7
Saudi Arabia	15.9	40.4	3.4	36	5	69	31	78	4.2	6.4
Syrian Arab Republic	13.3	35.3	3.6	42	6	67	39	51	4.5	6.1
Turkey	58.4	92.9	2.0	28	7	67	56	64	4.6	3.5
United Arab Emirates	1.7	2.8	2.3	21	4	71	22	82	3.1	4.5
Yemen	12.5	34.2	3.5	48	14	53	106	31	6.7	7.2

Social Indicators

Country or Territory	Adult literacy M/F 1990	Secondary school enrollment M/F 1986~90	Births attended by health worker(%) 1983~91	Family planning users(%) 1975~91	Access to health services (%) 1985~88	Access to safe water (%) 1988~90	Food production per capita (1979~81 =100) 1988~90	Agricultural population per hectare arable land 1988	GNP per capita (US$) 1990	% of central govt. expenditure 1980- 90	
										Education	Health
Eastern Asia											
China	84/62	50/38	94	72	90	74	132	7.8	370	–	–
Dem. Peo. Rep. of Korea	–	100/100	100	–	–	–	107	3.1	–	–	–
Hong Kong	–	71/75	100	81	99	100	62	10.9	11,490	–	–
Japan	–	94/97	100	58	–	–	95	1.8	25,430	–	–
Mongolia	–	88/96	99	–	–	65	89	0.5	–	–	–
Republic of Korea	99/94	88/85	89	77	93	100	97	4.8	5,400	19.6	2.2
Southeastern Asia											
Cambodia	48/22	45/20	47	–	53	18	163	1.8	–	–	–
Indonesia	84/62	52/43	32	50	80	58	128	3.9	570	8.4	2.0
Lao People's Dem. Rep.	–	31/22	–	–	67	35	121	3.1	200	–	–
Malaysia	87/70	58/59	82	51	–	79	155	1.1	2,320	–	–
Myanmar	89/72	25/23	57	–	33	31	101	1.9	–	16.8	4.6
Phiippines	90/90	72/75	55	36	–	81	86	3.5	730	16.9	4.1
Singapore	–	68/71	100	74	100	100	87	14.4	11,160	18.1	4.7
Thailand	96/90	32/28	71	66	90	93	105	1.7	1,420	20.1	6.8
Viet Nam	92/84	43/40	95	53	80	42	119	6.0	–	–	–

Social Indicators (continued)

Country or Territory	Adult literacy M/F 1990	Secondary school enrollment M/F 1986~90	Births attended by health worker(%) 1983~91	Family planning users(%) 1975~91	Access to health services (%) 1985~88	Access to safe water (%) 1988~90	Food production per capita (1979~81 =100) 1988~90	Agricultural population per hectare arable land 1988	GNP per capita (US$) 1990	% of central govt. expenditure 1980~90	
										Education	Health
Southern Asia											
Afghanistan	44/14	11/5	9	–	29	21	85	1.1	–	–	–
Bangladesh	47/22	23/11	5	40	45	81	97	8.3	210	11.2	4.8
Bhutan	51/25	7/2	7	–	65	32	84	10.2	190	11.6	5.3
India	62/34	54/31	33	43	–	86	119	3.1	350	2.5	1.6
Iran (Islamic Republic of)	65/43	62/44	70	–	80	89	99	1.0	2,490	22.0	8.5
Nepal	38/13	42/17	6	14	–	37	113	7.1	170	10.9	4.8
Pakistan	47/21	28/12	40	12	55	56	104	3.0	380	2.0	0.7
Sri Lanka	93/84	71/76	94	62	93	60	88	4.6	470	9.9	5.4
Western Asia											
Iraq	70/49	58/37	50	14	93	92	90	0.7	–	–	–
Israel	–	79/86	99	–	–	–	100	0.5	10,920	10.2	4.1
Jordan	89/70	80/78	87	35	97	99	113	0.5	1,240	14.2	5.8
Kuwait	77/67	93/87	99	35	100	–	–	7.1	–	14.0	7.4
Lebanon	88/73	57/56	45	–	–	92	145	0.9	–	–	–
Oman	–	55/40	60	9	91	55	–	12.2	–	10.7	4.6
Saudi Arabia	73/48	53/39	90	–	97	94	277	4.5	7,050	–	–
Syrian Arab Republic	78/51	63/45	61	20	75	70	83	0.5	1,000	8.6	1.3
Turkey	90/71	63/39	77	63	–	78	97	0.9	1,630	19.2	3.6
United Arab Emirates	58/38	60/69	99	–	99	95	–	1.1	19,860	15.0	6.9
Yemen	53/26	42/7	12	1	38	38	80	–	–	–	–

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Telephone: (03) 3581−7770
Printed in Tokyo. Japan