Report on the Survey of Urbanization and Development in Asian Countries

Nepal

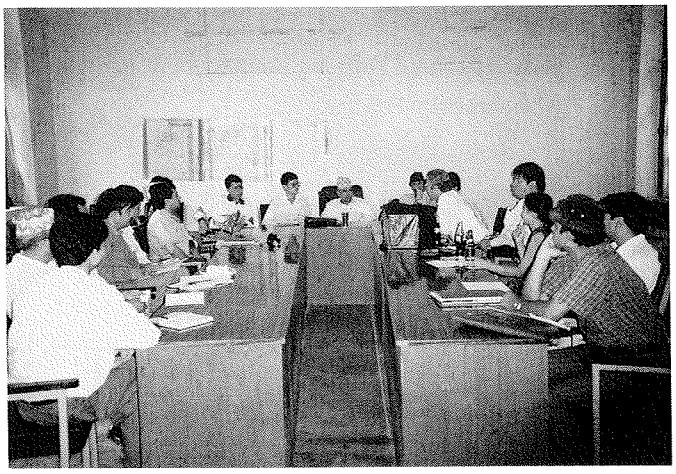
MARCH 1996

The Asian Population and Development Association

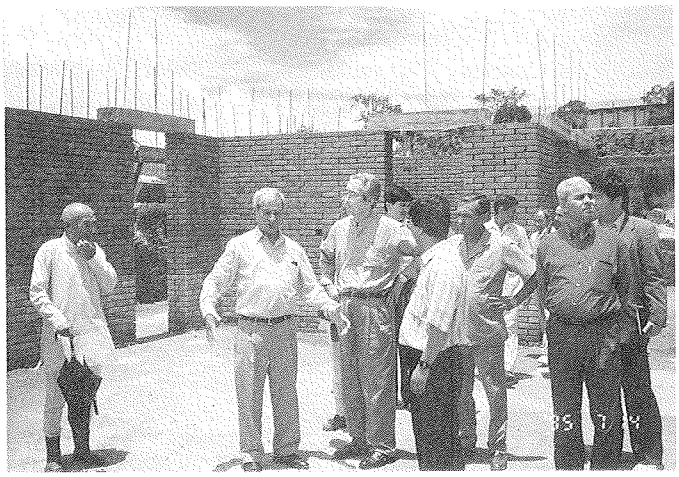
◄ Courtesy Call on Hon. Ambassador Shigenobu Yoshida (the fourth from the right) at his official residence

◄ At Kathmandu Municipal Office
From the left : Mr. P.L. Singh, Mayor, Mr. Minoru Kiryu, Team leader, Mr. Tomomi Otsuka, Team member, Ms. Haruyo Kitabata, Team member

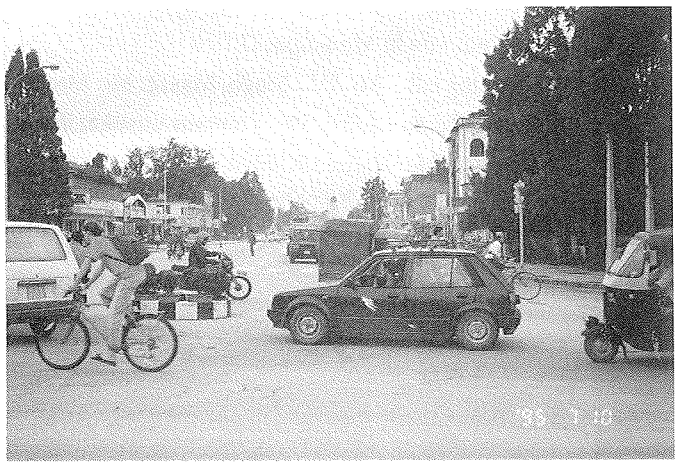
◄ At Ministry of Health
From the left : Mr. Bishnu Dutta Uprety, Joint Secretary of Parliamentary Information Division and Dr. B.D. Chataut, Chief



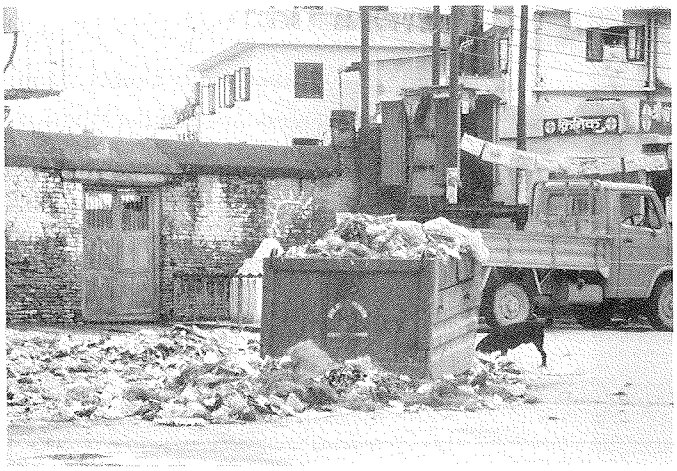
◄ At Kavre Palanchok District Development Committee (D.D.C.) Office
Mr. Krishna Prasad Sapkota, District Development Committee Chairman (the center)



◄ At the construction site of Dhulikhel Hospital
Mr. B.P. Shrestha, Mayor of Dhulikhel
(the second from the left)



◄ The trafic situation at Kathmandu City



◄ The garbage standing in mountains along the side of the road where it has been discarded

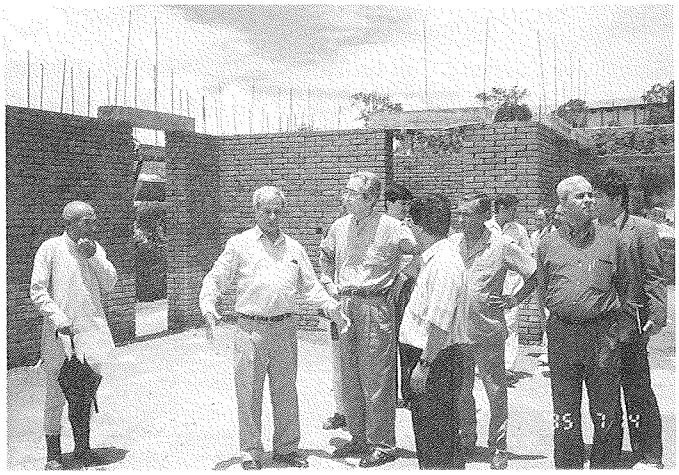
◄ A signboard warning people about garbage and automobile exhaust

◄ Courtesy Call on Hon. Ambassador Shigenobu Yoshida (the fourth from the right) at his official residence

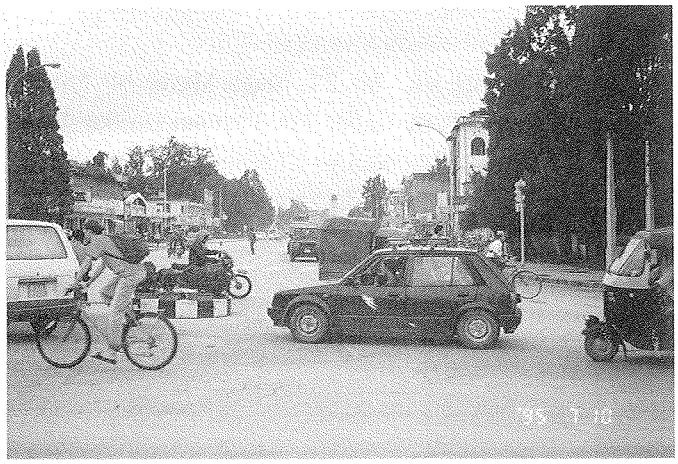
◄ At Kathmandu Municipal Office
From the left : Mr. P.L. Singh, Mayor, Mr. Minoru Kiryu, Team leader, Mr. Tomomi Otsuka, Team member, Ms. Haruyo Kitabata, Team member

◄ At Ministry of Health
From the left : Mr. Bishnu Dutta Uprety, Joint Secretary of Parliamentary Information Division and Dr. B.D. Chataut, Chief

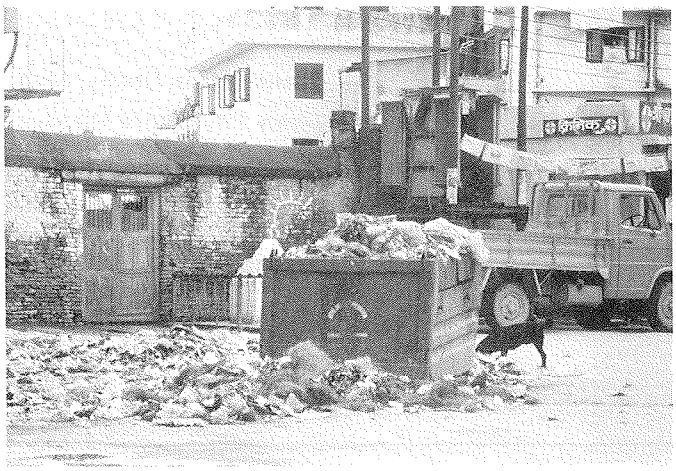
◄ At Kavre Palanchok District Development Committee (D.D.C.) Office
Mr. Krishna Prasad Sapkota, District Development Committee Chairman (the center)



◄ At the construction site of Dhulikhel Hospital
Mr. B.P. Shrestha, Mayor of Dhulikhel
(the second from the left)



◄ The trafic situation at Kathmandu City



◄ The garbage standing in mountains along the side of the road where it has been discarded

◄ A signboard warning people about garbage and automobile exhaust

Foreword

This report presents the findings of survey of population and development in Nepal. In 1995, the Asian Population and Development Association (APDA) was entrusted with the survey project "Survey of Urbanization and Development in Asian Countries" by the Ministry of Health and Welfare and the Japan International Corporation of Welfare Services. APDA selected Nepal as the country in which its field survey would be conducted. The actual survey and analysis of the resultant findings were conducted by APDA's survey committee (Chairperson - Dr. Toshio Kuroda, Director Emeritus, Nihon University Population Research Institute).

Urbanization is progressing rapidly in Asian countries. Urbanization resulting from the sudden concentration of the population is causing a deterioration in health and medical services, family planning and maternal and child health services, and the living environment in cities. Because of this, there is a need to understand in detail the growth and distribution of the population, the health and medical situation, population estimates, the age composition, and the family planning and maternal and child health in these countries, and to study how these affect the population policies and development plans of the countries. The objective of this survey therefore was to research and analyze the population trends in Asian countries, and in particular the state of urbanization and health and medical services, so as to contribute to solving the problems of urbanization of the population and development of Asian countries.

The field survey was conducted with the guidance and cooperation of H. E. Mr. Shigenobu Yoshida, Ambassador of Japan to Nepal and Mr. Hisaki Indou, First Secretary, Embassy of Japan in Nepal, and Mr. Bishnu Dutta Uprety, Joint Secretary, Parliamentary Information Division, Nepal Parliament Secretariat. In Japan, members of the Policy Planning & Evaluation Division, Minister's Secretariat, Ministry of Health and Welfare and of the Department of Policies, Economic Cooperation Bureau, Ministry of Foreign Affairs cooperated on the planning and arrangements of the field survey. I would like to express my heartfelt gratitude to all of them.

I sincerely hope that this report will contribute to the future advancement of the urbanization and popoulation programs of Nepal as well as the Japanese government's effective cooperation with Nepal.

Furthermore, I would like to add that this report is the responsibility of the APDA and does not necessarily reflect the views or policies of the Ministry of Health and Welfare or the Japanese government.

March, 1996
Fukusaburo Maeda
Chairman
The Asian Population and Development Association

Contents

Chapter One

Introduction: Trials and Expectations for Nepal, the Least Developed Country

Twenty-one million people live in Nepal, a holy land lying in the Himalayas that symbolize the roof of the earth. A country known for the yak and the abominable snowman, the Yeti, for its pastoral and phantasmagorical scenery. The Nepalese are proud of diverse culture and religion, and also holy place of Lumbini, where Buddha was born. It is also one of the few countries in Asia that retained its independence during the colonial periods.

However, Nepal is also one of the least developed countries as defined by the United Nations. It is one of the most behind in development of the developing nations, in contrast to the industrialized world. In other words. It is one of the poorest nations. Per capita gross domestic product (GDP) one of the indices for measuring a nation's wealth, was only US$149 in 1992, which makes it the lowest in South Asia, lower than Bhutan at US$170. It can be understood how low this level is if we compare it to the countries of Southeast Asia where Indonesia has a US$686 per capita GDP, the Philippines has US$816, Malaysia has US$3,094 and Thailand has US$1903 (1992).

What are the reasons why Nepal being the most impoverished and the most behind in economic development? First, is its geographical situation. A land of hills and mountains with no seas, and an extremely harsh climate, which are important factors blocking modernization. Second, is the political situation. For a long time from the beginning of the 19th to the middle of the 20th century, close to a century and a half, fendal system and isolation policy from the rest of

the world, prevented Nepal from social and economic takeoff. In the 1960s, the movement for democratization became active, people hoped for political reform but political instability expressed in weak government control under the Koilala cabinet of the National Parliamentary faction, split-up of parties, economic deterioration, establishment of a unified Communist Party government, and collapse in a short period, blocked the road to economic and social modernization.

The economic and social stagnation, which reflects the severe poverty level, is closely related to the demographic transition level. The crude birth rate is 42 and crude death rate is 13, resulting in a natural increase rate of 29, in other words a high level of 3 % is indicated (see Chapter 4). The 1994 ESCAP data sheet says that the crude birth rate is 37 and the crude death rate is 13, a natural rate of increase of 24 (2.4 %). The crude birth rate, around 40, is high. The death rate is on a trend toward improvement, but the infant mortality rate is extremely high, 96, close to 100. Life expectancy at birth is remarkably low. In addition to it, there is the very unusual situation of females having a shorter life expectancy than males. This suggests that women's position under poverty is in the worst condition.

Looking at the fertility level from the total fertility rate, it is 5.3, which is remarkably high and we can see how high this level is, when we compare it to the Southeast Asian average of 3.2. When we calculate Nepal's demographic transition index* using the same methods as for East Asia and Southeast Asia, we obtain a 42 % level. This suggests that Nepal just achieved only at 42 % of the whole course to reach the final stage of average life expectancy of 79 at birth, and a total fertility rate of 2.00 or less. In other words, improvement still remains to be made in a mortality rate and a fertility control. Nepal is in the initial stage of demographic transition. Japan's demographic transition was completed quickly earlier, and Hong Kong's and Taiwan's is close to completion. South Korea and China are almost at the 90 % mark. Indonesia is at 70 % and the Philippines is the 60 % level.

The waves of modernization are moving into Nepalese society, along with its tradition of a living god named Kumari. One of the examples of that modernization is the trends in urbanization. Only 14 % of the population is urban. That is the lowest in South Asia with the exception of Bhutan at six %. Bangladesh has an urban population of 18 %, Sri Lanka of 22 %, and India, 27 %. One outstanding feature, however is the high average annual urbanization rate. Since 1970-75 high level of 7～8 % still continue. ** The period 1990-95 shows that Nepal has very high annual urbanization rate at 7.1 % in spite of lowest level of urbanization, while India's rate is only 2.9 %, Pakistan's is 4.4 % and Sri Lanka's is 2.2 %. Bangladesh's rate is somewhat high at 5.3 %. One of the reasons for this is the very low level of Nepalese urbanization itself, but this increase in urban population is a refection of modernization process. These trends in urbanization are also seen in the 20 years from 1971 to 1991, when the population of the hill regions dropped from 53 to 46 %, and the population of the Terai (flatlands) regions rose sharply from 38 to 47%.***

The industrial structure is still dominated by the primary sector, but its proportion of GDP is rapidly declining from 69.7 % in 1974-75 to 53.6 % in 1984-85, and then below 50 % to 41.8 % in 1994-95. On the other hand, non-agricultural industries have shown remarkable development. Share of GDP by construction industry rose from 3.5 % to 11.3 % in the period 1974-95, that of finance and real estate rose from 6.6 to 9.9 % in the same period and manufacturing went from 4.0 to 9.4 % (see Chapter 3). Increase of employment in these industries in the secondary and tertiary sectors is a basic cause for the increase in urban population, because they are mostly located in the cities.

The geographical and topographical situation is also a factor, because it works to preserve the traditional, conservative cultural and social systems, and when the repercussions of modernization and internationalization are added in, all of it works to make the eradication from poverty difficult. One of the warnings of this is in the present problems with AIDS and the environment deterioration in the cities, particularly Kathmandu. One of the major problems today is how to solve the logically conflicting mix of modern and traditional.

An unique idea of strategy to solve these problems was proposed and agreed upon at the United Nations Conference on Population and Development held in Cairo in 1994. They are the two most important action programs: "the empowerment of women" and "the assurance of health related to reproduction in women's lives, which includes family planning". These action programs are some of the most important policies that could be adopted by Nepal: 1) improve the social, political and economic position of women, 2) attain justice and equality between men and women, and 3) maintain the health of women, the main actors in reproducing the population. In Nepal, where women's life expectancy is shorter than men's, the extraordinarily high rates of maternity mortality at 833 and infant mortality at 86 are shocking. These are one of the most urgent tasks that Nepal must confront. A basic emergency task is the controlling of high fertility, total fertility rate of 5.2. Among the policies that will make possible the empowerment of women and the assurance of their health is raising the level of basic education and disseminating compulsory education throughout the land.

The natural, social, cultural, political and economic factors keep Nepal in a state of underdevelopment and have been considered by some to be unavoidable, but it is in the position of being able to take advantage of the successful experiences of the neighboring nations. Demographic transition completed in Japan, spreading quickly into East Asian and Southeast Asian countries is good evidences that the less developed a quickly country lagging behind may be able to attain transition process at much shorter period.

Notes. Unless otherwise indicated, statistics are from UNFPA's The State of World Population 1955.

* T. Kuroda : Demographic Transition in Japan and Its Spread in Asia, "The Population and Society of Postwar Japan Based on Half a Century of Surveys on Family Planning", edited by the Population Problems Research Council, The Mainichi Newspapers, 1994. See p. 16.

** United Nations : World Urbanization Prospects The 1994 Revision, New York, 1995, P. 111.

The table below gives trends in rate of average annual increase of urban population in some South-central Asian countries.

Country	1965 –70	1970 –75	1975 –80	1980 –85	1985 –90	1990 –95
Bangradesh	6.70	6.74	6.76	5.57	5.04	5.26
India	3.27	3.76	3.66	3.24	3.01	2.87
Nepal	4.30	7.32	8.11	7.97	7.43	7.07
Pakistan	3.90	3.76	3.87	4.87	4.90	4.44
Sri Lanka	4.21	1.83	1.28	1.24	1.58	2.20

*** Omer Ertur: The Need for A National Urbanization Policy in Nepal, Asia-Pacific Population Journal, Vol. 9, No. 3, 1994, p. 21

Chapter Two

Nepal--Economic Development and Urbanization

1 Economics

Nepal is a typical case of a least-lesser developed country (LLDC), landlocked, surrounded on all four sides by India and China, with almost all of its territory mountainous. Its 1994 per-capita GNP was $202, giving it the ranking of 149th in economic development of the 173 countries of the world (1993 ranking was 162nd with per-capita GNP of $180). Nepal has been a monarchy for many years, making democratic selection of policy difficult, its destiny also determined constantly by the Asian great powers that surround it, placing it in a position where it has to exist by being very watchful of China and India. In 1989, India economically blockaded it, an act which had severe repercussions on the Nepalese economy.

However, one of the results of the democratization movement was the creation of the Constitution of the Kingdom of Nepal in 1990, which established democratic forms in Nepal and led to the selection of new economic policies that are focused on liberalization. That has resulted in a move to steady economic growth over the past several years. This section shall examine the features of the Nepalese economic structure, analyze the process of economic development and examine the present situation and problems of urbanization.

(1) The present economy

Economic growth (in GDP) remains on a low trend over the past several years as it has for some time, but signs of recovery can be seen with growth for the 1993-94 fiscal year at 6.41 % and for the 1994-95 fiscal year at 4.06 %. The average rate of annual growth for the five years beginning fiscal year 1990-91 was 4.31 %, which is actually below the 4.65 % of the previous five year period. This drop is attributable to the low growth rate for the subsequent two years; 3.3 % in fiscal 1991-92 caused by the effects of the Indian economic sanctions and 2.3 % in fiscal 1993 caused by the decline (4.7%) in farm production due to poor weather.)

However, since fiscal 1993, a series of liberalization programs, particularly, foreign exchange liberalization, have reactivated production in the manufacturing sector and increased it by 4.6 % in 1993-94 and 14.7 % in 1994-95 (first nine months).

Farming production continues to be a weather-dependent type and the major factor in the decline in farmer production is the weather. Rice production in the Terai, flatlands has been governed by damage from monsoon flooding and at the same time water shortage in the mountain regions over the past several years.

Production in the 1994-95 fiscal year declined 4.3 % from the previous fiscal year. This was mainly because there was a particular drop in rice production of 16.2 % to 2.928 million tons (3.493 million tons in the previous year) which is attributable to the shortage of water during the rainy season. But, at the same time, production of sugar beets, vegetable oil products, cigarettes, potatoes and other cash crops increased 4.9 %.

Manufactures such as cement and candy, sugar, beverages and other processed foods increased in production but farm implements, plywood and jute products declined. Production at public corporations that have medium-scale factories remained stagnant, but private small-scale and cottage industries moved steadily ahead with new registration in 1993-94 of small-scale and cottage industries reaching 9,486, total investment in them rising to 3.6 billion rupees and the number of persons that they newly employ reaching 63,263, all of which represents an overall increase over the previous year.

India's economic sanctions in 1990 and the subsequent democratization disturbances placed tourism into a declining trend, but in 1994 marked a recovery with an increase of 11.2 % in the number of tourists over the previous year. Over the past several years, the annual number of tourists has remained around the 300,000 level with almost all of the fluctuating increase and decrease brought on people entering from India. People entering from India accounted for 31.4 % of all entrant in 1994 and is the overwhelmingly largest amount on a per-country base. This high figure is brought on by the almost free access with no need for visas to move to and from India and Nepal. Estimates state that the number of Indians entering and exiting Nepal is actually much larger. In recent years there has been a larger number of people from India coming into and leaving Nepal who are doing so for business purposes rather than tourism, and the inclusion of these people presents a problem in accurately assessing the numbers.

In the nation's fiscal situation, expenditure for fiscal 1993-94 was 31.334 billion rupees ($639 million), income was 21.974 billion rupees ($448 million), current balance was 9.36 billion rupees ($191 million) and the deficit increased 10.3 % over the previous fiscal year. The current accounts deficit was covered by overseas aid and loans from domestic banks, and aid increased 69.5 % from the previous year.

The money supply has increased at high levels for the past several years, but as of April 1995, M(1) was increasing at 13.6 % M(2) at 11.7 % which much calmer than the 19.6 and 19.7 % of the same period in the previous fiscal year. Bank loans were on a favorable trend, in particular, loans to the private sector increased 27.2 % over the same period of the previous fiscal year.

Trends for the first nine months of fiscal 1994-95 show foreign trade to be in an extremely favorable situation with total trade at 59.637 billion rupees ($124 million), a 16.8 % increase over the same period for the previous fiscal year. However, exports for the same period were 13.664 billion rupees, a 7.4 % decline, and the 26.7 % increase to 45.972 billion rupees in imports put the balance of trade in deficit at 32.308 rupees, a 50 % increase over the same period of the previous fiscal year.

Exports to India continued their high increase (33.9 %) while exports to other countries declined 13.5 %.

(2) Features of the industrial structure

Farming is the main feature of the Nepalese industrial structure, and while other industries, forestry, mining, tourism and manufacturing, exist, dependence on agriculture remains high. The ratio of agriculture to non-agricultural in GDP has change from 6:4 in 1984-85 to 5:5 in 1994-95, but the speed of development of industries other than agriculture is slow. The main reason for this is topographical and geographical features of Nepal. The fact that most of the land is steep mountain country has retarded the development of a transportation network, and that, in turn, has led to difficulties in market formation and low income levels, which delay the formation of industrial capital. Nepal is a landlocked country squeezed between China and India and has to be very cautious about its dependence on and restraint of either of these two countries. The series of liberalization programs over the past several years has led to expanded trade with India, which creates new problems for backward domestic industrial development.

Looking at the general picture of the Nepalese economy, we must consider each feature of the nation's topographical divisions.

① Southern flatlands (Terai): This is a low, 30-50-kilometer wide belt-shaped foothill region running east and west adjacent to the Ganges flatlands of northern India and the south of the Siwalik mountain range. A region of fertile alluvial soil well suited to rice farming that produces about 70 % of total rice production in Nepal. A lot of unexploited land remains dense forest.

② Central hill region: This is a region of highly diverse elevations that accounts for about two-thirds of Nepal's total land and moves from the Siwalik range that is 800-1500 meters above sea-level through the Mahabharata mountains that are 2,000-3,000 meters above sea level to the great Himalayan range. The region is divided by the branch mountain ridge that extends to the south from the Himalayas and by the many rivers that flow through deep valleys in it. It is not a contiguous region but one of many large and small basins at various points. In these basins are cultivated wet rice, dry-field rice, minor cereals and vegetables, but in the mountain regions, maize and minor cereals are cultivated from the peaks of the mountains down with an extremely low per unit yield. The capital, Kathmandu, is in this region.

③ The Himalayan mountain region: Farming in the Himalayan mountain range, which has six mountains over 8,000 meters in height, and its foothills consists of cultivation of vegetables by individual households, but the entire livelihood is based on animal husbandry of yaks and mountain sheep.

These regional divisions are primarily attributable to differences in altitude and constitute one of the particular features of the Nepalese economy. Economic progress has been slow causing changes in the industrial structure to be slow too. However, the industrial structure is changing along patterns similar to those seen in other developing nations.

When we look at changes in the per-sector composition of GDP, the primary sector, farming, forestry and fishing, accounted for 69.7 % in the 1974-75 fiscal year, but declined to 53.6 % in fiscal 1984-85 and to 41.8 % in fiscal 1994-95. The tertiary sector--construction, transportation, communications, commerce and tourism--increased its percentages. Construction rose from 3.5 % in fiscal 1974-75 to 11.3 % in 1994-95, while transportation and communications rose from 4.2 % to 7.3 %, and commerce and tourism went from 3.2 % to 4.7 %. The secondary sector (manufacturing) increased from 4.0 % to 9.4 %, increasing at an especially rapid rate in the latter 1980s.

Sectoral features

The agricultual sector produces food products of rice, maize, wheat, barley, minor cereals, and cash crops of sugar beets, all oil vegetable, cigarettes, potatoes, jute, and, in addition, beans, fruits and vegetables.

Food production is unable to extricate itself from weather dependency, and is thus extremely unstable, but in the past several years production has averaged about 5.2 million tons, on a cultivated area of 3.1 million hectares. If we consider that the population is 20 million, then there should be adequate room for food production. Up until the latter part of the 1980s, the Terai regions was exporting rice to India, considering as a whole, there should be no threat of food shortage. However, as pointed out above, the inadequacies of transportation infrastructure and differences in income caused by differences in altitude mean certain areas, such as the

mountain regions, have distortions in food supply that lead to shortages, even though the Terai and capital basin are able to supply food rather smoothly.

Official statistics show that Nepal has not exported rice to India since fiscal 1984-85. However, estimates contend that large volumes of Nepalese rice have crossed the border for sale in Indian markets. In percentage of production by food product for 1994-95, rice was at 54 % followed by meize at 23.5 %.

A large volume of the cash crop produced is sugar beets and potatoes and the main items exported to India are beans (7.4 % of total value of all exports to India), hardened oils (3.97 %) and cashew nuts (3.8 %).

Differences in the patterns of farm production are determined by altitude and topography. Wet rice, jute and sugar beets are cultivated in the Terai flatlands, wet rice and dry rice in the basins, and wet rice in terraced fields in the mountain, where oil vegetables and beans are also produced.

The main problem of agricultural production in Nepal is the low rate of productivity caused by topographical restrictions. The yield of rice in 1994-95 fiscal year, for example, is 2.06 tons per hectare, a rather low rate in Asia. The failure to increase the per hectare yield over the last decade has been a particular problem. The reasons for this failure are 1) Very poor irrigation facilities in the Terai region to promote the cultivation of double crop seasons; 2) Not increase in the low number of farmers using high-yield seed; 5 % in the 1970s and only 10 % in the 1990s; 3) Few improvements in farming in the mountain regions, and little advance in the use of fertilizers in the basins and flat regions, so that average use is a mere 3.5 kg per hectare; and 4) Severe relations between landlord and tenant farmers mean that farmers, generally, have a low incentive to produce, and only a few areas have made the move out of subsistence farming.

The essential agricultural development strategy for Nepal would be one that takes into consideration the restrictions of topographical factors to formulate and implement a development policy according to region and difference in altitude.

The increased participation of in the secondary sector in the 1990s by manufacturers producing processed food, paper, plastics, beverages and powdered soap for the domestic market and embroidery, jute, carpet and electric products parts for export steadily increased the value of production output. The rate of factory production increased from negative in the 1988-89 and 1989-90 fiscal years by 29.3 % in 1990-91 and then showed increases of 9.2, 1.4 and 4.6 %. Encouragement of private investment based on economic liberalization policies since democratization has especially activated the small-scale and cottage industries of the private sector. The Foreign Investment and One Window Policy, the 1992 Foreign Investment and Technology Transfer Act and the 1992 Industrial Enterprises Act, which are based on the New Industrial Policy made public in 1992, rapidly increased the number of registered private manufacturing industries. Newly registered small-scale and cottage manufacturers climbed to 9,486 in fiscal 1993-94 alone, a 46.4 % jump over the previous fiscal year.

Tourism is a valuable foreign exchange earner for Nepal with income from tourism during the 1993-94 fiscal year at 8.251 billion rupees ($171 million). That was 42.5 % of the total value of exports in the same fiscal year. Tourism and tourism supporting industries are greatly affected by the fluctuations in the number of tourists from overseas. Political instability caused by Indian economic sanctions and the democratization movement decreased the number of tourists from 1990 to 1992 but in 1993 that number increased 12.2 % over the previous year and in 1994 increased 11.2 %. The number of tourists from overseas from January to December 1993 was 326,531, the highest ever recorded. Of those, 23 %, or 102,540, were tourists from India, the number is on an increasing trend. As of January 1995, there were 72 star hotels (luxury hotels) with 6,502 beds and 322 non-star hotels with 11,228 beds. There has been a trend in recent years to build hotels in the outskirts of Kathmandu.

2 Economic development and urbanization

In the 1990s, Nepal, like other Asian countries, has gotten on the track to economic development. However, its stage of development is still low because of the many restrictions existing on it. Of the effects that accompany economic development, urbanization is moving forward at a slow pace compared with the other Asian countries. This section reviews the course of Nepalese economic development and concomitant urbanization.

(1) Initial stage

Nepal's first economic development plans were laid down in the mid-1950s, beginning with the 1956-57～1960-61 five year economic plan. It started with Nepal as a unified state and adopted policy for economic development. The majority of this plan was to be taken care of by aid funds from the United States and other countries, but there was ultimately no procurement of funds from within the country, and in the final year of the plan, former King Mahendra caused a change in the government with almost no results from the plan.

The second plan that began in 1962 was a three year plan but the real development plans began with the third five year plan for 1965-66～1970-71. During this period the Panchayat system under King Mahendra took firm hold, making it a time in which policy development was possible throughout the entire country. Around this time the industrialized countries instituted a genuine program of economic assistance (ODA) from international organizations so that 70-80 % of development funds relied on ODA. Until the end of the fourth (1971-72～1975-76) five year plan, the basic strategy of these development plans was to extend the authority of the central government to all of Nepal and to solidify it as a state, and to that end their most important tasks were the building of a road network and development of energy. The construction of the east-west highway was begun under the aegis of this plan.

Expansion of public investment in this way allowed government stability to be seen as the foundation of Nepalese economic development and the functions of Kathmandu as capital were built. City population in Nepal increased from 3.5 % in 1961 to 3.9 % in 1971 although it was not a big change.

In the decade from 1961 to 1971, the population of Kathmandu increased by no more than 20,000, from 234,000 to 254,000.

Kathmandu city then extended to a radius of five kilometers with its center on the new and old royal palaces. In the first half of the 1970s, there were few cars and a feeling of real spaciousness. Tourists from overseas average about 50,000 per year with only a few first class (star) hotels for tourists.

In the cities of Bhaktapur and Patan, which are satellites to the capital, there was some increase of population in the city streets, but few of the serious problems that accompany urbanization.

The increase in population in rural cities was also very slow, and there was no rapid increase in the cities of the Terai flatlands until the 1980s.

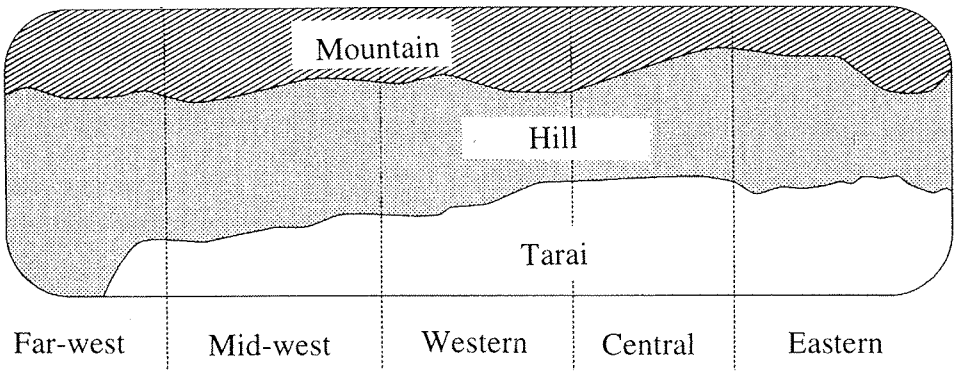
(2) The sprouting of development plans and urbanization

Nepal's economic development plans really began to function in 1975-76 in the fifth economic plan that lasted until 1979-80. All of the five year plans up to that time had emphasized long term investments such as that for the infrastructure, they produced no short-term effects. Reflecting on what had gone wrong with the previous plans, a shift in the strategy of development was made in this plan to productions orientations such as industrial promotion. To smoothly implement the plan, the entire country was divided into four administrative development regions, with a finely detailed development policy for each region. These four regions are the east, central, west and far west. This divides Nepal into four zones north and south, each of them having mountains, hills and Terai flatlands, making regional divisions suitable as separate economic units. In 1980, the far west region was further divided into a midwest and far west so that there are now five administrative development regions.

Although these regions were suitable theoretically, the reality of close, traditional Nepalese economic exchange and activity between east and west, prevents the connections between the mountain, hill and plain, even today, from becoming very active especially in the far west and midwestern regions. However, this has resulted in active investment in the central and eastern regions and an expanding income differential with other regions.

This plan emphasized development of the farming sector and continued to develop the farm production base by building such things as small irrigation facilities, farming water supply canals and farm roads.

Fig. 1 Conceptual Diagram of Administrative Development Regions



However, the plan could not achieve its targets, 5 % per annum, and only got as far as 2.2 % per annum. Farming production was especially hard hit with bad weather on top of everything else and failed to reach its target of 17 %, registering instead a negative -2.8 % growth.

The sixth plan (1980-81～1984-85) took this into consideration when it was inaugurated and further proposed production-oriented investment. Its basic targets were to accelerate expansion production, create productive employment opportunities, and fulfill the basic needs of the Nepalese people and it especially emphasized promoting irrigation projects and improving production procedures in the farming sector. It also emphasized promotion of cottage industries and farm product processing to increase employment opportunities in farm villages. this plan resulted in an annual economic growth rate of 5.3 %, which surpassed the targeted 4 %. That put the Nepalese economy on a growth track, although one of low level and its approach was taken over in the seventh five year plan (1985-86～1989-90) which emphasized further diversification of industrial promotion and continued steady growth (4.1 % during the plan period).

The 1980's economic development strategy aimed for balanced national development that would improve basic living standards by promoting agriculture and correcting the differences between regions for which administrative development districts had been assigned. However that resulted in expanding rather than diminishing the gaps in the ability to absorb development investment and in geographic and industrial structure between regions. The ability or inability of villages to benefit from the effects of improved investment in the various means of production widened the income gap.

That resulted in development moving forward in the central region, the hilly part of the eastern region and in the flatlands, and a widening income gap between those and other regions. That increase the population inflow into both regions from other areas and especially increased the flow of people into the areas around Kathmandu, the central region and the eastern flatlands region.

(3) Urbanization effects in the 1990s

Indian economic sanctions, the domestic democratization movement, the inauguration of a democratic system, and the inauguration of a communist government have made the 1990s a turbulent time for Nepal. Despite this, the first half of the 1990s, with the exception of fiscal 1991 and 1992 when growth was low at 2-3 %, has seen sustained growth on the 5 % level. Much of this is attributable to the series of economic liberalization policies installed after the inception of a democratic system, the relaxation of regulations and the improvement of economic relations with India, and especially the expansion of investment in manufacturing, centering on the cottage industries, and the concomitant increase in construction investment have been brought on by activation of the private sector.

This is why medium, small and cottage industries are rapidly increasing in Kathmandu and surrounding areas, in the regional cities of the central and eastern Terai plains, and why population inflow into those regions has begun to accelerate. The rate of urbanization had a three point increase in a decade from 6.4 % in 1981 to 9.2 % in 1991 and estimates are that it will exceed 10 % in 1995.

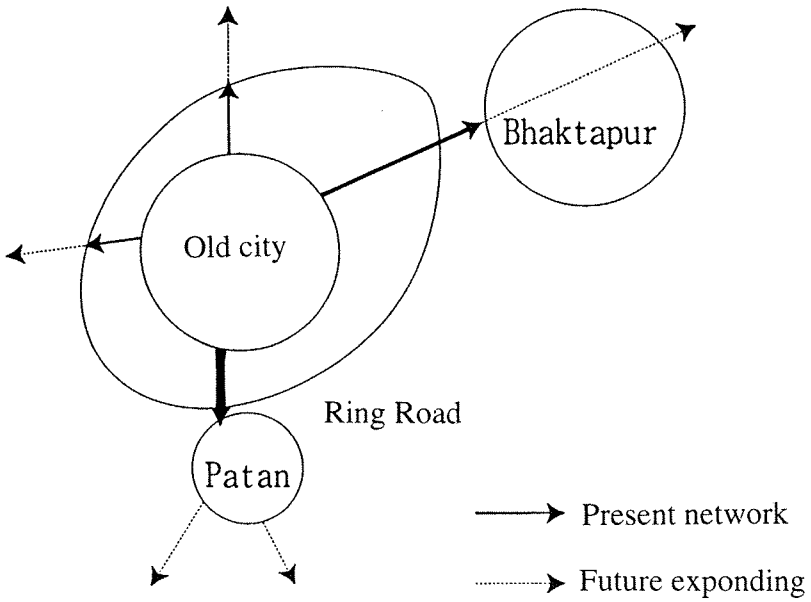
Forming the backdrop for these trends, most of all, are the industrialization and activation of investment for manufacturing and other private sectors in Kathmandu and adjacent areas. Many of the new factories constructed in those areas since 1990 are embroidery, brick and carpet manufacture, food processing, consumer electronics assembly, woodwork and folk craft manufacture and almost all are labor intensive. The Ministry of Industry estimates that their employment creation in five years (1990-95) has been close to 30,000 jobs. Since 1992, encouragement of overall private investment in the manufacturing sector has led to the establishment of 264 companies on an authorized basis with 40 % of those concentrated in Kathmandu, and almost 80 % in Kathmandu and surrounding areas. The policy to encourage foreign investment has allowed setups in almost every type of industry in addition to alcohol, cigarettes and weapons manufacture (investors in those areas are allowed to set up if the manufactures are 100 % for export) and almost 20 Japanese companies are incorporated in Nepal. By country, India is largest, with 60 % of the total.

Secondly, the development of these economic facilities is a factor in expanding the peripheral industries such as retail stores, restaurants, hotels, amusements, transportation, construction and others in the service sector, increasing the power of employment absorption and accelerating the population influx.

The old quarters of Kathmandu city are already saturated, and residential areas are expanding outside of the ring road (built with Chinese aid) that encircles the city and on to the neighboring cities to create a linkage that will be connected in a matter of time. A bridge is now being built across the Bagmati River with Japanese grant aid, which will link Kathmandu with Patan after completion. The city of Bhaktapur which is being linked by a trolley bus line built with Chinese aid will be connected in the near future with the Kathmandu.

If the opening to foreign investment and the creation of a market economy continues, the concentration of private investment in the capital region will mirror the typical cases seen in other Asian countries. Only Kathmandu and its peripheral areas have the environment for foreign investment and investment in private corporations. The continuing liberalization of the economy will not stop the urbanization of Kathmandu. Thoroughgoing policies to deal with urbanization and to correct differences between the capital and other regions are necessary.

Fig. 2 Conceptual Diagram of the Expansion of Kathmandu and Adjacent Areas



3 The problem of urbanization in Nepal and Counter Measures

When we take into consideration Nepal's stage of economic development, its industrial structure, and its geographical characteristics, we can see that general urban problems are now no longer latent. However, as pointed out above, population rapidly increased in the 1990s, especially in Kathmandu, and some of the urban functions were handicapped and problems with environmental destruction arose. Predictions are that if the present patterns of economic development and urbanization continue, urban problems will be serious in the near future. This section will examine the situation and problems of urbanization in the capital and discuss in detail policy approaches for dealing with those problems.

(1) Urbanization in Kathmandu

The population of the Kathmandu municipality as of 1991 was 421,000 and the estimate for 1995 is that it will be around 450,000. However, in addition to this population, it is also estimated that there are a large number of Indian transients, due to their ability to move freely in and out of the country. If we add to that there large number of foreign tourists staying in the city, there are

seasonal changes, we can estimate the city's population scale to be on the order of 500,000.

If the urbanization of Kathmandu continues to expand outward as it has, the addition of the suburban populations will create further problems. The 1991 census pegs the population of Kathmandu province at 675,300 and the estimate is that it has exceeded 700,000 in 1995.

The population of the capital area has doubled since 1981 and comparing that with previous rates of increase shows the population increase to be extremely rapid. The reason for this rapid increase is the rapid increase in the influx of population and the factors behind it need to be pointed out.

First is the increase of employment for the new factories built in Kathmandu during the 1990s. There were 1,501 registered factory units with ten or more employees in the province in 1994, an increase of 75.1 % since 1981. The total number of employees at these factories was 77,432, an increase of 92.5 %. There have also been large increases in the number of cottage industries with ten or fewer employees making jute, embroidery and handicrafts, and that has increased the number of employees.

Second, the promotion of private investment has increased the number of companies backed by foreign capital (including Indian). The increase in employment caused by Indian capital invested into the services and factories that produce embroidery and construction materials has been dramatic.

Third, is the continued building of the infrastructure which centers on Kathmandu, particularly the transportation base, an indirect cause of population increase and population influx because it makes much easier for people to travel in from the farm and mountain regions. This increases the opportunities for people from farm and mountain regions to visit Kathmandu for any purpose, and the number of cases is increasing of people seeing Kathmandu, wanting to live there and making the decisions to do so. The increase in employment opportunities is another background factor for migrants to move in.

Thus, the basic causes for the increase in Kathmandu's population, is the migration in from other regions. Kathmandu's steady urbanization of the past several years is a concomitant of population increase and economic development. The following factors can be pointed to as the urbanization phenomenon.

First, is the expansion of the urban area. Kathmandu at the beginning of the 1980s was a small city that circled out with a radius of five kilometers and centered on the royal palace, the old royal place and the government buildings (secretariat). Fig. 2 shows that in the 1990s the loop highway expanded the boundaries of the city, then went beyond, with urbanization extending to the peripheral cities of Patan and Bhaktapur.

Second is the increase in traffic volume. As of April 1995, there were 143,500 motor vehicles registered in all of Nepal, an increase of 9.5 % from the previous year. 60.2 % of these vehicles are registered in Kathmandu and the neighboring Bagmati region.

The rate of increase in the capital area was particularly high with 67.2 % more vehicles than

in 1991.

Third, is the vast number of problems that accompany urbanization. Air pollution from exhaust gases and traffic jams caused by the increase in transpotation. There is the problem of garbage treatment and purification of water produced by the increase in population and industrialization. The building of water supply, sewers, electrical power and communications and other parts of the infrastructure cannot keep up with the demand and the number of crowded urban areas is on the increase.

(2) Problems and counter measures

The problems that accompanied Kathmandu's urbanization became readily apparent in the 1990s. The problems and the policies for dealing with them are talked about next.

① Garbage

The most serious problem in Kathmandu right now is the increasing amount of garbage and the methods of treating it. The diversification in types of garbage that come along with modernization cannot be disposed of at home or naturally (by having the dogs and crows take care of it) and the city is in a quandary as to how to get rid of the increased absolute volume of garbage. Garbage left along the street-side is deleterious to beautification and presents problems for sanitation. The city is working to upgrade its treatment system through aid from UNDP and Germany, but because of budget restrictions and delays in state aid to overcome those restrictions, the city is always playing catch-up in garbage disposal and treatment.

The basic problem here is that treatment facilities have not been built and there is no system in place to handle the large increases in garbage volume that accompany the advance of urbanization and increase in population. Policies for dealing with these problems are an urgent necessity.

② Traffic and pollution problems

Another problem is the inadequate road and transport network and infrastructure to deal with the increasing number of motor vehicles. Almost all of the streets in the old city were not built with the idea that motor vehicles would traverse them, and thus are extremely congested. The newly built roads are also seriously crowded during rush periods. Expansion of the urban area is causing roads that connect with outlying areas to be crowded throughout the day.

Methods of transport being used are motor bus and trolley bus. However, the narrow roads accelerate congestion, increasing the losses in time and energy year by year. As a means of dealing with this, the city and national governments are speeding ahead with the widening the ring road, improving the roads connecting the city with outlying areas, expanding the network, increase the number of traffic signals and the building of a bridge across the Bagmati River.

Even though traffic volumes are increasing, the problem is still a long way from those seen

in Manila and Bangkok. there are a number of causes for the air pollution attributable to exhaust gas: 1) Kathmandu is situated topographically in a basin, that makes it easy for pollution to accumulate in the city; 2) inadequate preparation of laws to regulate exhaust gas emissions from motor vehicles; 3) the large amount of exhaust emitted from the majority of non-fixed cars,mainly imported from India, and 4) widespread use of poor quality gasoline mixed with kerosene. The only exhaust gas measure the city has is to recommend the wearing of masks, but measures must be adopted that will basically remedy the problem.

③ Water supply and sewage problems

Kathmandu's supply of drinking water is also a problem. Water for an increasing population is supplied by taking it from nearby mountains passing it through a water filtration plant and then sending it to each household, and although there is no problem in the rainy season, water shortages during the dry season have become an annual occurrence. A water collection system has been built with Japanese gratis aid that is now complete and collects water from 13 locations. However, future population increases are going to demand the building of an even larger scale system, and the deterioration of the water distribution system in the old city is creating problems with loss of water and with sanitation that make the building of a new water distribution network an urgent necessity.

Almost all of the sewage water discharge from homes goes into open water ditches and no improvements are being made in the sewage water discharge infrastructure. Two facilities have been built in the city, the Lalitpur sewer water treatment facility (20-35 ML/D capacity) and the Kodkhu treatment facility, but the water discharge that does not go to these plants is allowed to flow into the Bagmati River, the pollution of which is becoming a major problem.

④ Others

In addition to these problems there is also a basic necessary to build infrastructure for electrical power, communications and housing and long term plans must be adopted that take future development into consideration.

Table 1 Changes In Nepalese GDP

(in million rupees)

	1990 / 91	91 / 92	92 / 93	93 / 94*	94 / 95**
Nominal GDP	108,422	135,036	153,756	177,915	198,605
Farming	55,368	65,156	70,090	81,621	87,072
Non-farming	53,054	69,880	83,666	96,294	111,533
Real GDP	30,249	31,376	32,081	34,251	35,401
Farming	17,438	17,253	17,014	18,245	18,190
Non-farming	12,811	14,123	15,067	16,006	17,211
GDP Deflator	358.4	430.4	479.3	519.4	561.0
Farming	317.5	377.7	412.0	447.4	478.7
Non-farming	414.1	494.8	555.3	601.6	648.0
Changes in real GDP (%)	5.54	3.73	2.25	6.76	3.36
Farming	2.15	-1.06	-1.39	7.24	-0.30
Non-farming	10.53	10.24	6.68	6.23	7.53

* Tentative ** Estimates

Source : Nepal Central Statistic Office

Table 2 Configuration of Nepal GDP (nominal) by sector

(in million rupees)

	1990 / 91	91 / 92	92 / 93	93 / 94	94 / 95
Farming, forestry and fishing	55,368	65,156	70,096	81,621	87,072
Mining and quarries	575	795	921	1,092	1,268
Manufacturing	7,894	12,822	14,618	17,227	19,559
Utilities	815	1,238	1,437	1,778	1,923
Construction	11,078	14,769	17,318	19,621	23,560
Commerce	5,196	6,669	7,755	8,806	9,735
Transportation and communication	6,560	8,558	10,819	12,625	15,252
Finance	10,944	13,241	15,684	18,122	20,673
Government and health	9,991	11,788	15,115	17,023	19,563
GDP (for cost of elements)	108,422	135,036	153,756	177,915	198,605
GDP (market prices)	112,665	139,590	159,880	186,372	207,870
GDP (in 1974-75 prices)	30,249	31,376	32,081	34,251	35,401
GDP deflator	358.4	430.4	479.3	519.4	561.0
Rate of increase over previous year (real)	5.54	3.73	2.25	6.76	3.36

Source:Nepalese Ministry of Finance. Compiled from Tables 1.1 and 1.2 in the 1994-95 Economic Survey.

Table 3 Grain Production in Nepal

(in 1000 hectare, 1000 ton and ton/hectare)

		90 / 91	91 / 92	92 / 93	93 / 94	94 / 95
Rice	Cultivated area	1,453	1,412	1,324	1,454	1,421
	Production Quantity	3,498	3,223	2,712	3,493	2,928
	Productivity per hectare	2.41	2.28	2.05	2.40	2.06
Maize	Cultivated area	756	754	775	757	771
	Production Quantity	1,228	1,205	1,291	1,210	1,273
	Productivity per hectare	1.63	1.60	1.67	1.60	1.65
Wheat	Cultivated area	593	571	614	620	634
	Production Quantity	836	779	765	873	915
	Productivity per hectare	1.41	1.36	1.25	1.41	1.44
Barley	Cultivated area	30	30	30	30	31
	Production Quantity	28	28	28	29	30
	Productivity per hectare	0.94	0.93	0.93	0.95	0.96
Sugar Cane	Cultivated area	198	198	202	254	250
	Production Quantity	231	229	237	274	268
	Productivity per hectare	1.17	1.15	1.17	1.08	1.07

Note: Tentative values for wheat and barley in 1994-95. #23 Source: Ministry of Finance. Compiled from Table 2.1 in the 1994-95 Economic Survey.

Table 4 Nepal's Major Industrial Productions

	Units	90 / 91	91 / 92	92 / 93	93 / 94	94 / 95
1. Jute products	1ton	11,170	17,639	18,199	19,315	17,400
2. Sugar	1ton	44,548	55,365	64,416	34,044	48,336
3. Cigarettes	100,000 cigarettes	669	696	784	689	730
4. Matches	1,000 gross	1,091	942	1,081	1,113	1,222
5. Liqueurs	1,000kiloliter	2,626	3,022	3,477	2,100	3,400
6. Soap	1ton	20,057	20,903	22,970	20,648	21,700
7. Shoes	1,000 pair	1,009	1,530	823	700	685
8. Leather	1,000 hides	14,174	6,892	8,424	7,950	12,500
9. Farm implements	1ton	113	735	1,329	150	120
10. Tea	1ton	1,249	1,476	1,636	1,993	2,000
11. Stainless dinnerware	1ton	265	159	275	347	400
12. Bricks and tile	1,000	32,625	34,915	27,290	23,545	24,750
13. Beer	1,000kiloliter	10,386	12,329	14,382	14,900	17,000
14. Cotton fabric	1,000kilometer	5,421	7,207	7,139	5,619	5,967
15. Cement	1ton	135,897	237,327	247,891	315,514	410,000
16. Biscuits	1ton	5,538	5,534	6,497	6,278	67,000
17. Plywood	1,000 square feet	268	645	411	570	450
18. Synthetic textiles	1,000kilometer	16,484	11,445	12,795	16,657	17,300

Note
1. Figures for 1993-94 are revised and figures for 1994-95 are tentative.
2. Bricks and tiles shown are only those from the state-owned factory
3. Shoes for 1994-95 include canvas shoes 4. Liqueurs do not include home brew.

Source: Nepal Ministry of Industry and Nepal Central Bank

Table 5 Indices for Nepal's Major Manufactures

(Manufactures for 1974-75 = 100)

	90 / 91	91 / 92	92 / 93	93 / 94	94 / 95
1. Jute products	61.07	96.45	99.51	105.61	95.14
2. Sugar	181.35	225.38	262.23	138.59	196.77
3. Cigarettes	119.48	124.34	140.11	123.11	130.36
4. Matches	83.03	71.69	82.27	84.70	93.00
5. Liqueurs	204.68	235.54	271.01	163.68	265.00
6. Soap	175.02	182.40	200.44	180.17	189.35
7. Shoes	833.88	1,264.46	680.17	578.15	566.12
8. Leather	114.04	55.45	67.68	63.96	100.57
9. Farm implements	31.13	202.48	366.12	41.32	33.06
10. Tea	112.32	132.73	147.12	179.23	179.86
11. Stainless dinnerware	62.95	37.77	65.32	82.42	95.01
12. Bricks and tile	96.31	103.07	80.56	69.50	73.06
13. Beer	280.78	333.31	388.81	402.81	459.58
14. Cotton fabric	30.42	40.44	40.06	31.53	33.48
15. Cement	89.62	156.52	163.48	208.08	270.39
16. Biscuits	122.09	122.00	143.23	138.40	147.71
17. Plywood	10.77	25.92	16.52	22.91	18.09
18. Synthetic textiles	142.58	99.00	110.67	144.08	149.64

Note Figures for 1993-94 are tentative and figures for 1994-95 are estimates.
Source: Nepal Central Bank

Table 6 Nepal's Overseas Trade

(in million rupees)

		90 / 91	91 / 92	92 / 93	93 / 94	94 / 95
To India	Export	1,552.2	1,450.0	1,621.0	2,578.3	2,519.4
	Import	7,323.1	11,245.5	12,542.1	17,868.1	14,864.2
	Balance	-5,770.9	-9,795.5	-10,920.4	-15,289.8	-12,344.8
To other countries	Export	5,835.3	12,256.5	15,644.8	16,839.6	11,144.8
	Import	15,903.4	20,694.5	26,663.5	35,565.5	31,108.7
	Balance	-10,068.1	-8,438.0	-10,018.7	-17,725.9	-19,963.9
Total	Export	7,387.5	13,706.5	17,266.5	19,417.9	13,664.2
	Import	23,226.5	31,940.0	39,205.6	52,433.6	45,972.9
	Balance	-15,839.0	-18,233.6	-21,939.1	-33,015.7	-32,308.7

Note: Figures for 1994-95 are for the first nine months only, exports are F.O.B. and imports are C.I.F.

Nepal Ministry of Finance. Taken from Table 6.1 in the 1994-95 Economic Survey.

Table 7 Rate of Factory Operation for Nepal's Major Manufactures

(%)

	90 / 91	91 / 92	92 / 93	93 / 94
Sugar	72	69	69	68
Cigarettes	65	66	63	79
Beer	72	57	77	88
Matches	13	25	44	58
Shoes	39	48	24	48
Cement	34	48	44	67
Jute products	35	47	38	37

Source: Ministry of Industry

Table 8 Changes in GDP Percentages by Sector

(%)

	74 / 75	84 / 85	94 / 95
Farming, forestry and fishing	69.7	53.6	41.8
Manufacturing	4.0	5.5	9.4
Mining	0.1	0.3	0.6
Construction	3.5	7.9	11.3
Commerce and Tourism	3.2	4.1	4.7
Transportation and communications	4.2	6.1	7.3
Finance and real estate	6.6	8.9	9.9

Source : 1994-95 Economic Survey. Ministry of Finance.

Figure 2: Distribution of urban centres in Nepal: 1952

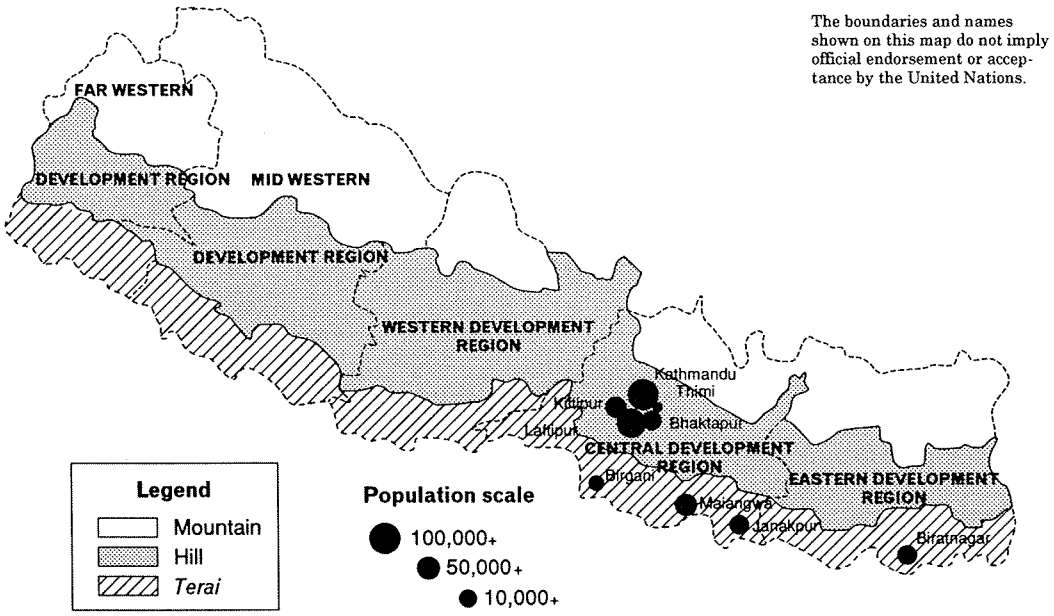
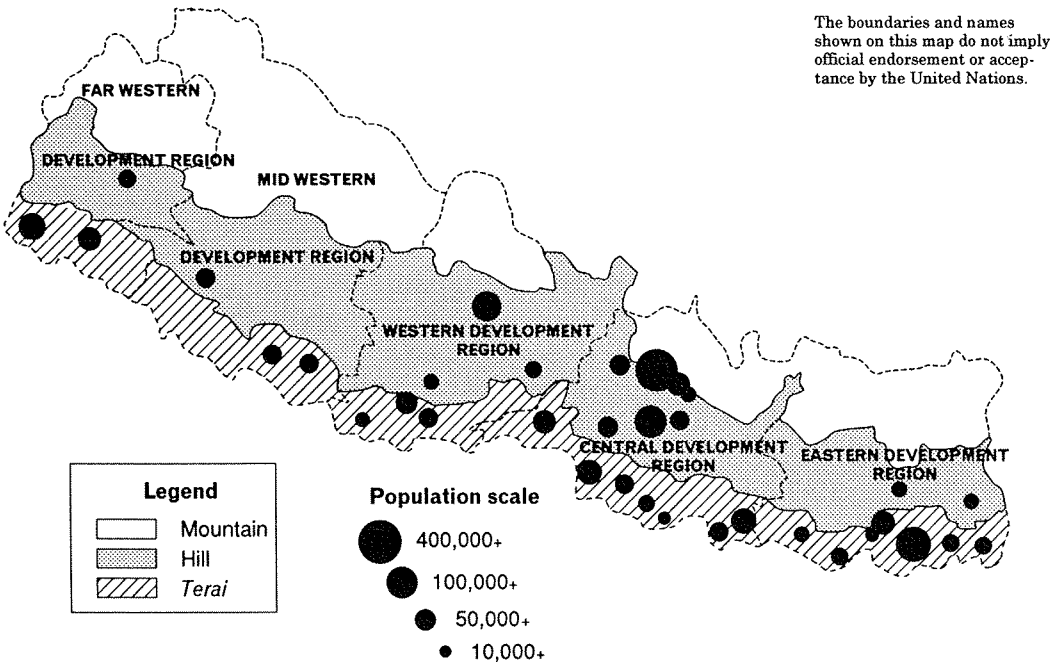


Figure 3: Distribution of urban centres in Nepal: 1991



Chapter Three

The Urbanization of the Population in Nepal

1 Features of Population Composition and Trends

Nepal's land area is 140,000 km^2 about 40% of the area of Japan, the land may being divisible into three geographical categories, mountains, hills and plains, large amounts of which are not suited for habitation. Approximately 18 million people (as of 1991) or one-seventh the population of Japan live under extremely harsh national land conditions. Thus, although the population density at 128 per square kilometer is not much higher than Japan's, the natural environment is not an easy one.

Despite that, the population has been increasing at more than 2% since 1930 (see Table 1). If we are talking about the population in 1991, especially, we know that about 11% was excluded from the census survey and when we take that into consideration, the rate of increase in population from 1981 to 1991 is greater than 3%. However, the population from 1911 to 1930 was decreasing, but the reason for that is still not clear. At the present time what is generally given as the reason for that, is 1) the effects of the influenza prevalent at the time and 2) the death of Nepalese soldier in W.W.I and 3) persons who were not included in the census count.

Why did the Nepalese population increase? We shall now examine this question based on population statistics.

Table 2 shows the trends in birth rates and death rates. However, there are two weak points

that must be kept in mind: 1) the figures given are estimates, and 2) the subject years for those estimates do not coincide (see the notes in Table 2). These are weak points but we can see from this table that 1) there was only a slow moving drop in the birth rate from the 47‰ of 1961 to the 42‰ of 1991, 2) the death rate dropped relatively rapidly from the 22‰ of 1961 to the 13‰ of 1991, the result of which caused 3) the natural increase, the difference between the birth and death rates, to increase from the 22～25‰ level to the 28～29‰ level.

The reasons for this slow decrease in the birth rate are the result of a long continuing period in which 1) so many people in poverty increases the role and value of children as members of the labor force and 2) the large number of parents who must have a large number of children because of the high death rate among newborn infants, also attributable to poverty, to sustain them in old age. That resulted in 3) a society which is permeated with the customs and thinking of welcoming a large number of births and male children. Movements for birth control and family planning do not catch on easily in a society like this.

In contrast, there is a relatively smooth decline in the rate of deaths. This phenomena is attributable to these factors 1) it is easy to get people to cooperate with policies for long life (decrease in the death rate) because that is a hope common to people throughout the world; 2) the rapid progress in medicine after the second world war, which led to the development of low cost and effective pharmaceuticals, medical equipment and techniques, and aid which bestowed those benefits on developing countries, including Nepal; and 3) governments that considered the life of the citizen to be important invested large amounts of money and effort in policies for public health and sanitation.

The 28～29‰ rate of natural increase arose out of a combination of these factors. The rate of population increase, when the population is taken as 100, is 2.8～2.9%, which approximates the 2.7～3.2% average annual rate of increase shown in Table 1. Taking these facts into consideration, we can see a great deal of agreement between the estimated rates of birth and death given in Table 2.

These statistics actually imply a major problem. If the 3% rate of population increase is sustained, the population of Nepal will double in 23 years (=70 ÷ 3). Under the severity of the natural environment in Nepal is clear that the population doubling in a short period will create population pressure that bears down on people's live and creates suffering. Although it is ironic, the high rate of increase in the Nepalese population is gloomy testament to the success of the country's administration of health and welfare. The only way to eliminate the darker aspects of this enormous success is to lower the birth rate. Suppression of the birth rate is highly significant for Nepal.

The high rate of population growth is also attributable to a very active population. This is shown by Figure 1 which depicts the age-sex composition of the Nepalese population. As we can see it had the feature of a population composition with few people in the senior strata (65 and older) and a large number of people in the 15～64 age group and the 0～14 age group.

2 Urbanization and trends and distribution in population

As mentioned above, the geography of Nepal is divided into three categories, mountainous, hill and Terai region. How is the population distributed in these three types of land. Table 3 shows this distribution. From it we can see that population is on a consistent decrease in the mountain and hill regions and a consistent increase in Terai. For example, the population in mountain regions as a percentage of the total has declined 10% in 1971 to 8% in 1991. On the other hand, population in the hill regions which occupied a majority of the total population, 53% in 1971, has fallen to 46% in 1991, and the 38% of the population which lived in the plains in 1971 has risen to 47% in 1991, almost a reverse of positions.

This change in population distribution, it goes without saying, is being caused by migration. Tables 4 and 5 show life-time migration in 1981 and 1991 and either one of these tables dramatically shows the features in which 1) population is flowing out of the mountain and hill regions 2) that same population is flowing into Terai region, and 3) the net rate of population outflow from the mountain regions is higher than that of the Terai region. Almost the same trends can be seen in data for mobility other than that for life-time migration. That is to say, the population of Nepal is flowing, just as water does, from high places to low places, it is moving from the highlands to the lowlands.

These people are flowing into mainly the areas where then can anticipate employment and income, i.e., the urban areas. Table 6 shows the trends in urban population of Nepal. The proportion of the population, as a part of the total, for the urban population has risen from 3.6% in 1961 to 9.2% in 1991. The population of the capital, Kathmandu, as a percentage of the total population, has risen from 1.3% in 1961 to 2.3% in 1991.

The inflow of population into Kathmandu, began to go markedly from around the time that economic activity within the city became active due to the economic liberalization policies of early 1990. (However, local survey reports seem to indicate that manufacturing was not what was bringing these people in. The majority of that population were being absorbed into the informal and other parts of the service sector.)

That resulted in many different problems. Due to inclement weather, the survey group was unable to survey in detail cities other than Kathmandu, but through the survey activities in that city, they saw the situation in which problems were already worsening such as 1) disorderly expansion in city streets and residential areas (urban sprawl); 2) air pollution caused by smoke and exhaust effluents emitted from motor vehicles and factories; 3) the growing seriousness of garbage treatment problems caused by household garbage discharge; and 4) inadequate water supply, inadequate sewage and waste water treatment facilities. Generally speaking, in the cities of the developing countries that are experiencing these phenomenon, the population that is flowing into the urban areas is a floating population, and it is common to see the generation of large scale slums, but fortunately, at the present time, it is thought that no such phenomena are

being actualized in Kathmandu.

However, here is the problem that should be taken into consideration. That is the question of whether this can be decisively determined to be an urban problem. As the statistical figures previously cited indicate, the percentage of the national population which is taken up by the urban population in Nepal is 9.2%, the rate which is taken by the Kathmandu city is a mere 2.3%, and urbanization is proceeding apace, but it has just got started. Moreover, the problem of water supply and waste water and the problem of garbage treatment are problems that have been pointed out from before. Motor vehicles (including motorcycles) are on the increase and 60% are concentrated in the region surrounding Kathmandu, but as of April 1995, there were only 143,000 vehicles registered in all of Nepal. The number of factories is not that great and those that do exist are small in scale. In other words, the issue of exhaust and smoke emissions, is related to the automobiles and factory equipment performance, and is believed to be a problem that can be solved through technology.

If we take these factors into consideration, the present Kathmandu city is believed to be in a period transition in which problems such as lack of infrastructure, which has been a problem in existence for some time, or regulations on exhaust gas and smoke are being induced by a burgeoning population and changed into urban problems.

Considering that Nepal's above-mentioned high rate of population increase will continue into the future the harsh fact that the urban infrastructure of Kathmandu, although in the early stages of urbanization, will soon reach the limits of its ability to absorb population speaks clearly to the seriousness of the urban problems Kathmandu directly confronts. This situation applies not just to Kathmandu but to all the other cities in Nepal.

3 Tasks confronting Nepal

As we can see from the above, Nepal faces the difficult problem that despite the severity of its natural conditions, its population has increased rapidly, and there is a very high probability that this trend will continue. Under such conditions, it is no doubt natural that people will abandon regions with little ability to sustain population (chiefly the mountain and hill regions) and move into those with a high ability to sustain population, Terai. That will cause urban problems to worsen.

Dealing with such problems requires policies that will 1) build and expand the urban infrastructure 2) increase the ability of mountain and hill regions to sustain the population 3) work to promote industry on behalf of that increase and 4) work to develop the small and medium-size cities that are away from the capital. The reason being that if no policies are adopted other than expansion and development of the infrastructure, the heightened fascination with the urban areas will draw just that much more of the population into the urban areas. The fall of the

country into a vicious circle of this kind will rapidly deteriorate the national economy.

In other words, effective use of the national land is very important and to that end, a national land plan must be prepared that has connectivity in making use of mountain, hill and Terai land. Well then, what is the reality? Unfortunately, the consideration in regard to such a plan is inadequate. For example, if we are talking about policies in regard to the prevention of environmental hazards, it seems that most of the attention goes toward not setting up industries of the environmentally polluting types in Kathmandu. However, if Nepal were to place greater emphasis on tourist industries, then the prevention of environmental hazards to mountain and hill regions, rich as they are with desirable tourist resources would take on a much greater meaning.

The same applies to urban management. As stated above, garbage treatment in Kathmandu is in crisis. However, the problems do not end there. The garbage treatment problem in Kathmandu, the gateway to Nepal, does a great deal of damage to the country's image and negatively affects the development of tourism.

The lack of connectivity in dealing with all these problems and the weakness in solidarity between the government agencies dealing with these problems acts as a negative factor on benefits to the Nepalese national economy.

Japan is now aiding a reforestation plan in Kaski and Parbat in the vicinity of Pokhara. This aid program contributes to 1) heightened popular awareness of the environment; 2) developing the source of latent tourism assets in the region; and 3) improving the ability of the region to support the population by promoting forestry related industries. We can expect a lot from this plan. We can anticipate even further results through progress in plans of this type and efforts to transfer know-how for the formulation of policies to devise connective programs and national land plans.

Table 1 Trends in Overall Population

Year	Total population (in thousands)	Average annual rate of increase (%)
1911	5,639	—
1920	5,574	-0.13
1930	5,533	-0.07
1941	6,284	+1.16
1952/54	8,257	+2.30
1961	9,413	+1.65
1971	11,556	+2.07
1981	15,023	+2.66
1991	18,491	+2.10
	(20,780)	(+3.30)

Note : Numbers in parentheses are estimates of total population including those who were not covered by the census.

Source: CBS, Census Reports.

Table 2 Birth Rate and Death Rate

(unit : ‰)

Year	Crude birth rate	Crude death rate	Rate of natural increase
1961	47.0	22.0	25.0
1961～1971	43.4 (a)	21.4	22.0
1974～1975	44.7	19.5	25.2
1981	42.9	13.5	29.4
1984	40.7 (b)	10.9	29.8
1991	41.6	13.3	28.3

Note: (a) is an estimate for 1971 and (b) is an estimate for 1986.

Source: NPC and CBS, Population Monograph of Nepal, 1995.

Table 3 Distribution of Population in Nepal

	1952 / 54	1961	1971	1981	1991
Mountain	64.8	63.6	10%	9%	8%
Hill			53%	48%	46%
			(63%)	(57%)	(54%)
Terai	35.2	36.4	38%	44%	47%
Total	100.0	100.0	100.0	100.0	100.0

Note: Figures in parentheses are mountain and hill regions.

Source: NPC and CBS, Population Monograph of Nepal, 1995.

Table 4 Life-Time Migration (1981)

Place of registration	Region born				Net migration	
	Total	Mountain	Hill	Terai	Real numbers	Rate
Mountain	35,619	—	33,423	2,196	-261,467	-20.1
	(3.8)					
Hill	169,923	134,254	—	35,669	-424,711	- 5.9
	(18.3)					
Terai	724,043	162,832	561,211	—	+686,178	+10.8
	(77.9)					
Total	929,585	297,086	594,634	37,865		
	(100.0)	(32.0)	(64.0)	(4.0)		

Source: NPC and CBS, Population Monograph of Nepal, 1995.

Table 5 Life-Time Migration (1991)

Place of registration	Region born				Net migration	
	Total	Mountain	Hill	Terai	Real numbers	Rate
Mountain	36,674 (3.0)	—	32,003	4,671	-161,655	-11.2
Hill	173,968 (14.2)	76,503	—	97,465	-753,923	- 9.0
Terai	1,017,714 (82.8)	121,826	895,888	—	+915,578	+11.1
Total	1,228,356 (100.0)	198,329 (16.1)	927,891 (75.5)	102,136 (8.3)		

Source: NPC and CBS, Population Monograph of Nepal, 1995.

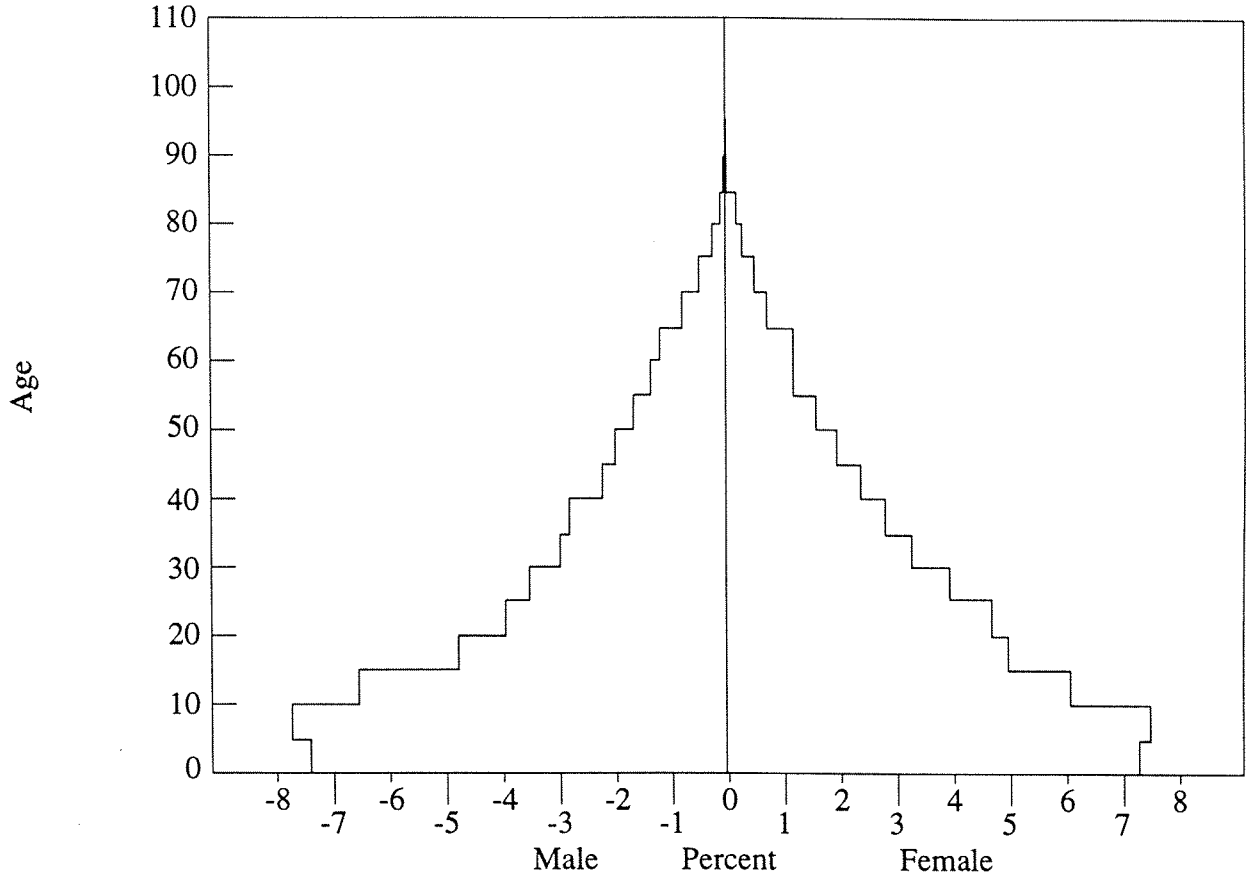
Table 6 Trends in Nepalese Urbanization

(units: thousands and percentages)

	1961	1971	1981	1991
Urban population	336.2	461.9	956.7	1,695.7
Rural population	9,076.8	11,094.1	14,066.1	16,795.4
Total population	9,413.0	11,556.0	15,022.8	18,491.1
Rate of urbanization	3.6	4.0	6.4	9.2
Katmandu	121.0	150.4	235.2	421.3
Percentage Katmandu population to total population	1.3	1.3	1.6	2.3

Source: CBS, Census Reports.

Fig. 1 Population Pyramid of Nepal 1991



Source: CBS, 1993, Vol. I, Table 5.

Chapter Four

Health and Medical Situation

1 Vital Statistics [1, 2, 3]

In understanding the health of the people of Nepal and in setting up policies for preventive medicine, it is extremely useful to know the conditions surrounding birth, the various diseases, death and the causes of death.

The data given below is taken from recent surveys.

(1) Crude birth rate [1]

The birth rate in 1961 was 47.0 per 1,000 live births but it then went into a slightly declining trend at 43.4 for 1971, 42.9 for 1981, and 41.6 for 1991. That is a decrease of 11.5% in that 30-year period. Japan's rate for 1991 is 9.9.

(2) Crude death rate [1]

Table 1 shows the crude death per 1,000 population, a decline from 22.0 in 1961 to 13.3 in 1991, or 39.5%. When rural and urban areas are compared, the rural is 1.4 times the urban (1986-87).

(3) Adjusted age-specific death rates for males and females [1)]

Figs. 1 and 2 show the adjusted age-specific death rates for males and females. The four periods 1974/75, 1976, 1977/78 and 1986/87 show an improvement in both men and women 25 years and older but the death rate for both male and female infants and children is high. In Japan the death rate is lowest in the 10～14 group, but in Nepal it is lowest in the 45～45 group for both males and females.

(4) Infant mortality rate [1)]

Infant mortality is an important index for determining the quality of sanitary conditions in formulating policies for mother and child health care in a particular region. Table 2 shows the infant mortality rates (per 1,000 live births) since 1965. The 152 for 1965-66 is the same as the rate in Japan in 1899 (153.8). In 1981, it had gone down to 117, and ten years later, 1991, to 97, an improvement of 17.1% in a decade. However, by sex the improvement was 30.9% for male and only 9.0% for female infants. The index for Japan in 1991 was 4.4, one of the highest in the world.

There is also a big difference between urban and rural. When 1974～75 is compared with 1989, the improvement in the rural areas is dramatic, but in the cities it actually got worse. This is thought to be attributable to the worsening of the life environment caused by urbanization as the most important part of the urban environment.

(5) Maternal mortality rate [1, 3)]

Comparisons are difficult to make because survey locations, ages and year the survey was taken are not always the same, but the maternal mortality rate in the farm villages is 850 and in the 15～49 age strata it is 515 values resembling those in the adjacent developing countries of India and Bangladesh. However those within hospitals are also considered to be those within facilities, and the values for maternal mortality rate there are a lower 189 (see Table 3) which is still high when the figures for the advanced countries are taken into consideration. For 1991 maternal mortality rates in industrialized countries were between 2 and 10, while in Japan it was 9.0.

Control of maternal health is thought to be an extremely important problem because it is formed against a backdrop of problems with sanitary conditions, medical facilities, the number of specialist doctors and maternity nurses, blood supply and transfusion.

The causes of death are not clear.

(6) Life expectancy [1)]

The life expectancy for both men and women, as Table 4 shows, is steadily increasing. In the 20 years from 1971 to 1991, male life expectancy has increased by 12.9 years but female life expectancy has increased more, by 13.5 years. However, males reached the age 50 level two

years earlier than women. This delay is related to infant mortality.

2 Statistics on contraction of disease, cause of death and narcotics

(1) Hospitalization and the ten leading causes for it [2,4]

From hospital statistics for 1990, Table 5 shows the ten leading causes for hospitalization and the proportion of deaths. Seven of the ten causes are contagious diseases. The statistics on death rates show the leading causes of death from disease to be encephalitis, meningitis, hepatitis and pneumonia. There is a high level of parasitic infections and it may be that abdominal pain and anemia reported there is attributable to parasites. This can be seen in Table 6 which shows the ten leading diseases contracted in 1991 in the western regions.

(2) Statistics on narcotics [4]

Narcotics is a leading social problem throughout the world. And Nepal in recent years is no exception. The number of narcotics arrests has been increasing since 1989. In 1989, there were 375 people arrested (361 of them Nepalese and 14 foreigners) but by 1992 that had increased 1.4 times to 529 (429 Nepalese and 100 foreigners). The volume of drugs in 1992 was 2,076kg of cannabis, 958kg of Indian cannabis, 21kg of heroin and 2,076kg of ganja. Hallucinogens like ganja and Indian cannabis (hashish) are illegally transported to India and powerful drugs like heroin are smuggled into Nepal from India and Thailand.

3 Medicine

(1) Technical health manpower [2]

Table 7 shows the increase of medical personnel in the last 7～8 years with the number of doctors doubling, the number of nurses going up 1.5 times and the number of allied health personnel increasing 8.4 times.

(2) Number of hospitals and number of hospital beds according to region [2]

Table 8 shows the different types of hospitals and the number of beds. 51.8% of the hospitals with 62% of the beds are in the hill regions. The number of hospitals have increased 1.5 times in nine years. There are 2,798～6,878 people per bed and there are, as the Table shows, large disparities in the population per hospital according to region.

Table 9 shows the ratio of population to facility, the percentages and numbers for the health posts, health centers and Ayurvedic ausadhalayas that are important health facilities for the people. One feature is the extremely low percentages of Terai health centers.

(3) Rate of immunization service [2)]

The rate of immunization service in the three regions is shown in Table 10. There is a high rate of vaccination in the Terai but a particularly low rate in the mountain regions.

4 Environmental situation

(1) Air pollution [5,6)]

Data on air pollution in Nepal has been insufficient so far. A few airs collect monthly data, but there is no systematic, overall data on seasonal or yearly trends. However, from that limited data we can see that there has been big changes in air pollution over the past ten years especially in Kathmandu. This is attributable to the topographical location in which Kathmandu finds itself, that of a large basin, to its large population, the increase in the number of factories, the growth in the number of automobiles and the reverse in air temperatures.

The amount of nitrogen oxides (NO_2) and sulfur dioxides (SO_2) in automobile exhaust gases, a cause of air pollution, is within WHO limits, but the amount of suspended particle matter (SPH) and PM10 surpasses WHO guidelines in many parts of Kathmandu. In 1987 (reported by Manandhar), the amount of SPH was 1,500～3,000μg/m^3, which is 6～11 times that along roads in the United States. The 1992 CEDA report gives figures of 197～775μg/m^3, and the 1993 ENPHO report gives at 19,455μg/m^3, with a PM10 value of 50～127μg/m^3.

The causes are the addition of lead to fuel, use of fuel that is worse than standard, narrow roads, undeveloped transit network and the import of used cars. The improper maintenance of vehicles further assists the worsening of air pollution (Joshi 1993). Also spurring on air pollution is the increase in exhaust gas from the increasing number of motor vehicles, a rate of 15% per year. The Bagmati zone shows a rate of increase according to vehicle from 1991/92 to 1992/93 of motorbikes 53.6%; car/jeep/van 29.5%; bus/minibus/truck 7.8%; and tempo 5.5%, other 3.6% (Rejbahak and Joshi 1993). Cars in the Kathmandu valley consume 79% of the gasoline and 27% of the diesel fuel in all of Nepal.

One more cause of pollution is factory production. In 1965, Kathmandu had 291 factories (making mainly bricks and tile), and they accounted for 9.6% of all factory production in Nepal, but by 1986/87, that number had increased to 789 factories (20.7%). That also raised the amount of suspended particle matter and gaseous exhausts, and worsened health and the life environment.

In the 1990 NECG survey, 105 of 125 factories contribute to the air pollution problems. The coal, wood, diesel fuel, kerosene and waste paper that these factories burn produces smoke, gaseous material and dust in their effluents.

In addition to that, there is the recent problem of the affects on health caused by indoor air pollution. The cause is the harmful substances contained in, and the poor ventilation in the burning of, biomass fuels such as firewood, ox dung and crops. Of the houses in Kathmandu,

47.5% do not have chimneys and 6.9% have chimneys that have collapsed, thus releasing smoke into the rooms.

Policies will be need to deal with both indoor and outdoor air pollution.

(2) Quality of water [5, 6]

① Water supply and drinking water

Average annual rainfall from 1987～1990 was 1,400 mm, 75% of which fell during the June-September monsoon season. The 1992 NCRP reports says that the daily per capita water consumption in the cities is 65 liters but that is still not enough in Kathmandu. The population being supplied with water (percentage) was 59% in 1970, and 83% in 1980, but in 1987 it went to 66%. to 69.3% in 1991, and to 67.2% in 1994. Also, 46% of the water in Kathmandu is underground water but about 40% (1991) of the water is leaking from the water supply.

The biggest problem with drinking water is contamination from fecal coliform. The presence of fecal coliform means contamination from human waste products, and it should ordinarily not be in the water supply. 50% of 172 samples taken in a survey in Kathmandu showed fecal coliform contamination (see Table 11). This is backed up by the high level of infectious disease that is attributable to water contamination in Nepal with 18% of infant, diarrhea is 35%, deaths attributable to diarrhea.

② Water pollution

The burgeoning population is causing waste water from houses and factories to be discharged into in the Bagmati River which flows through at least 30km of the Kathmandu Valley. That is causing worsening of water quality and destruction of the water environment. This is clear from chemical and biological data. Not only are hospitals discarding harmful infectious here and there in the city out of hospitals, it is also going into the water supply and flowing directly into the rivers.

Countermeasures, including legal regulations, to deal with problems in health must be adopted very quickly to build water supply systems construct waste treatment facilities and build facilities to treat factory water discharge in order to prevent ecological destruction.

(3) Noise pollution [3]

The increased number of motor vehicles in the cities is creating a noise problem. Vehicles that are improperly maintained emit especially large volumes of exhaust gases as well as noise and thus damage the ecosystem. The growth of factories brings big problems with factory noise and the textiles, cement, steel, sugar, pulp and flax mills are sources of noise levels 100dBA or higher. Noise is a problem for ordinary residential areas, too, with sound levels at one such area near a market recorded at 73-80dBA. Standards must be set up quickly.

(4) Land pollution

① Solid waste

Solid waste material is usually either animal or vegetable and may be emitted from the living practices of individual and families, or from commercial, industrial or agricultural activity. Greater Kathmandu discharges 400 m^3 of solid waste every day, which is equivalent to an average 0.4kg per capita per day (1991). Of that 76.7% is biodegradable.

Estimates contend that hospitals and clinics discharge 1.5 tons per day or 560 tons per year (1992).[5] This will be a leading health and ecological problem in the future. At least 42% of the households in Kathmandu and Lalitpur throw their solid waste out into streets or vacant lots. Recently, 65% are discharge their waste into streets or river beds, 26% into receptacles and 8.6% are using it to make compost. Measures including legal regulations will be mandatory to provide good solid waste disposal method and the building of incinerators, recycling and making fertilizer in order to prevent soil and water pollution, air pollution, foul odors and infectious diseases.

② Pollution from farm chemicals [6]

Nepal is using harmful materials, pesticides, germicides and other farm chemicals that will remain in the food chain. In 1987, 250 kinds of chemical substances were being used and that includes the use of seed coverings containing mercury. Pollution caused by the use of these farm chemicals is a big problem. There is a particular use of those materials that are no longer allowed in the advanced countries.

5 Budget

Table 12 shows that health expenditure in the national budget reached its peak in 1988/89 but has been declining ever since.

6 Conclusion

The data obtained from this survey is by no means adequate for providing an understanding of the health, medical and environmental problems in Nepal. However, although the country is quite behind the advanced nations in health and medical modes, the situation seems to be improving year by year. But this is also accompanied by a sense of crisis as the rapidly increasing population, industrialization and urbanization are worsening the life environment, i.e., the ecology. If the customary methods continue to be used, they will not only worsen disease and make the

health situation worse, they will cause the urban area to become a slum. The knowledge of many people must be brought together to adopt legal regulations that will solve these problems.

References

1. Population Monograph of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics, Ramshah Path, Kathmandu, 1995.
2. Health Information Bulletin, Vol. 8. Ministry of Health, Policy, Planning, Monitoring and Supervision Division, Kathmandu, Nepal. 1992.
3. Kokumin eiseino doukou, Vol. 41. Health and Welfare Statistics Association, 1994. (in Japanese)
4. Narcotics Control Bulletin, Ministry of Home Affairs, Planning and Special Services Division, Narcotic Drugs Control Section, Singha Durbar, Kathmandu, Nepal. Year 2-No. 1 (Aug-Jan 1993).
5. A Compendium on the Environmental Statistics of Nepal-NPC, HMG/N, 1994.
6. Environmental Pollution in Nepal - A review of Studies - Nepal National Conservation Strategy Implementation Programme National Planning Commission, HMG Nepal, in Collaboration with IUCN - The world Conservation Union, 1991.

Table 1 Crude Death Rate

(per 1,000 population)

year	males	females	total	urban	rural
1961	–	–	22.0	–	–
1974-75	18.6	20.4	19.5	9.0	19.8
1977-78	17.9	16.2	17.1	12.0	18.6
1984	10.8	10.8	10.9	–	–
1986-87	–	–	16.1	11.8	16.8
1991	12.9	13.6	13.3	–	–

Source: Reference 1

Table 2 Infant Mortality

(per 1,000 births)

year	males	females	total	urban	rural (urban/rural)
1965-66	–	–	152	–	
1974-75	141	123	133	57.1	134.8 (42%)
1977-78	110	98	104	67.2	105.1 (64%)
1981	136	111	117	–	–
1983-84	117	98	108	–	–
1989	–	–	–	69.0	105.0 (66%)
1991	94	101	97	–	–

Source: Reference 1

Table 3 Maternal Mortality

(per 100,000 births)

Hospital survey (1979-1985)	189
Rural regions (1977-78)	850
Ages 15-49 (1991/92)	515

References

Bangladesh	510
India	874
Japan	9

Source: Reference 1

Table 4 Average Life Expectancy

year	males	famales
1954	27.1	28.5
1971	42.1	40.0
1976	43.4	41.1
1981	50.9	48.1
1983	51.8	50.3
1991	55.0	53.5

Source: Reference 1

Table 5 Ten leading desease admitted to hospitals (1990 hospital statistics)

		Number of deaths/ number of patients	Rate of death (%)
1	Gastroenteritis	105 / 8,951	1.2
2	Pneumonia	245 / 3,372	7.3
3	Typhoid fever	30 / 2,412	1.2
4	Tuberculosis	185 / 2,005	9.2
5	Pain abdomen	18 / 1,276	1.4
6	Injury	22 / 854	2.6
7	Anemia	56 / 813	6.9
8	Hepatitis	53 / 653	8.1
9	Meningitis	104 / 587	17.7
10	Encephalitis	62 / 242	25.6

Source: Reference 2

Table 6 Ten leading desease of reported morbidity in western region in 1991

1. Skin disease
2. Helminthiasis
3. Diarrhea
4. ARI
5. Dysentery
6. Gastritis
7. Pyrexia ofunknown origin
8. Headache
9. Bronchitis
10. Otitis Media

Source: Reference 2

Table 7 Number of distribution of technical health manpower from 1983/84 through 1991/92

	1983/84	1988/89	1991/92
Total	5,907	18,795	28,209
Doctor	572	879	1,196
HMG Doctors			917
Others			295
Nurse	1,986	2,980	2,980
HMG Gaz Nurse			129
HMG Stuff Nurse			536
HMG ANM			144
Others			171
Kaviraj	160	202	240
Vaiday	49	90	130
Health Assistant	795	1,186	1,186
HMG HA			1,168
Others			18
Health Workers	2,917	14,337	24,457

Source: Reference 2

Table 8 Distribution of types of hospitals and hospital beds by three ecological belts and development regions under those belts.

	Mountain (%)	Hill (%)	TERAI (%)	Total (%)
Ministry of Health				
Number of hospitals	12	40	25	77
beds	183	1,556	1,059	2,834
IOM (Institute of Medicine)				
Number of hospitals		1		1
beds		300		300
RA/Police				
Number of hospitals		3	4	7
beds		339	43	382
NGO				
Number of hospitals	1	1		2
beds	12	37		49
Ophthalmology				
Number of hospitals		2	9	11
beds		130	468	598
Private				
Number of hospitals		1		1
beds		15		15
Mission				
Number of hospitals	1	8		9
beds	15	539		554
Nurs. Home				
Number of hospitals		4	2	6
beds		90	26	116
Total Number of hospitals/beds				
Number of hospitals	14 (12.3)	60 (51.8)	40 (36.0)	114 (100)
beds	210 (4.3)	3,006 (62.0)	1,632 (33.7)	4,848 (100)
Bed to population ratio (population/beds)	6,878	2,798	5,273	3,808
Hospital to population ratio (population/hospitals)	103,177	145,023	209,910	163,381

Source: Reference 2

Table 9 Population per Medical Institution by ecological belts and districts

	Mountain	Hill	TERAI	Total
Percentage of health posts	19.1 %	53.3 %	27.6 %	(816) real numbers
Health centers	44.4	50.0	5.6	(18)
Ayurve Ausadhalayas	15.2	62.1	22.8	(145)
Average population per health post	9,259	19,336	38,250	22,625
Average population per health center	180,560	934,589	8,606,291	1,025,671
Average population per Ayurvedic Ausad.	65,658	93,459	260,797	127,325

Source: Reference 2

Table 10 Percentage of immunization (mid-July 1991 to mid-July 1992)

(%)

	BCG	DPT	Polio 3	Measels
Mountain	53.7	39.8	40.1	43.0
Hill	79.1	68.3	65.4	64.3
Terai	95.5	86.6	86.8	70.6
Total	83.2	72.9	73.1	64.6

Source: Reference 2

Table 11 Number of fecal coliform in 172 Water Samples Taken in Katmandu city

(1991～1992)

No of fecal coliform / 100 ml	%
0	50
1～10	13
11～100	23
101～	14

Source: Reference 5

Table 12 National Budget

Fiscal year	Total National Budget	Health development budget (%)
1981/82	7,113,214	202,511 (2.85)
1985/86	11,489,364	403,355 (3.51)
1988/89	19,520,200	819,000 (4.20)
1991/92	33,595,224	741,473 (2.21)

Source: Reference 2

Fig. 1 Adjusted Age-Specific Death Rates for Males, Nepal

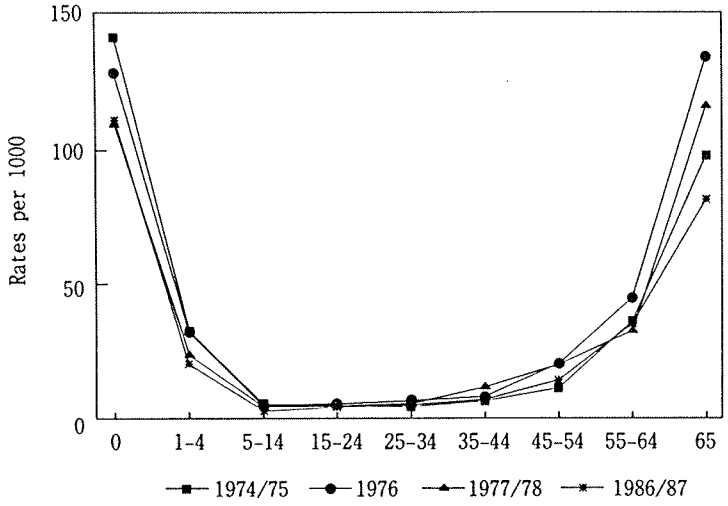
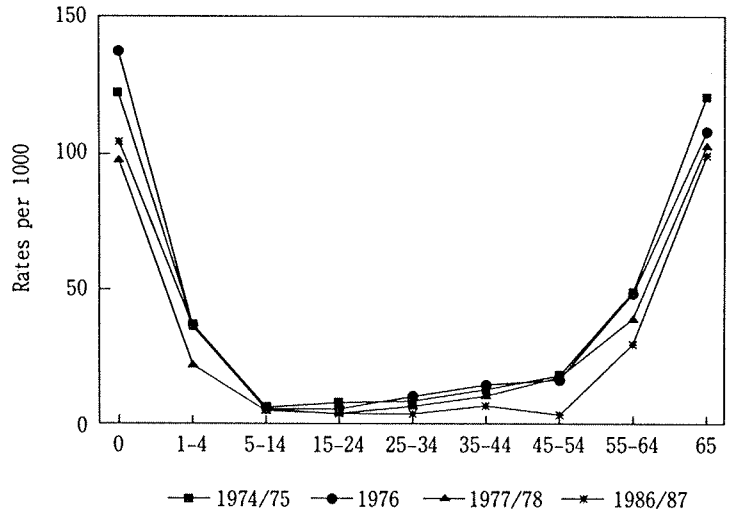


Fig. 2 Adjusted Age-Specific Death Rates for Females, Nepal



Source: Reference 1

Chapter Five

Description of Institutions Agency Visited in Nepal

Introduction

This on-site survey was conducted in the Kingdom of Nepal from 9 to 22 July 1995. On-site, we were afforded the unstinting cooperation of Mr. Bishnu Dutta Uprety, Joint Secretary, Parliamentary Information Division, in planning our schedule and conducting the survey. The survey team visited two different regions, the capital, Kathmandu, which is in the hill region, and the district of Kavre Palanchok, which is in the mountainous region. We visited government agencies, private corporations and international organizations in Nepal to gather data on changes in policies on, and the situation of, urbanization and development; on health and medical problems that accompany urbanization and on differences in the progress of development between Kathmandu and the district of Kavre palanchowk and how urbanization has affected population migration. Presented below is the data gathered on that trip.

1 Elina Garment Industries Ltd.

Date of visit : 12 July 1995
Person visited : Mr. Kedar B. Amatya, Managing Director

Summary of discussions :

The purpose of visiting Elina Garment Industries Ltd. was to ask if the activation of textile industries was drawing in the labor force to the urban areas and bringing on the urbanization of Nepal. However, the situation was different from what we assumed and, Mr. Amatya told us as follows.

Elina was incorporated 12 years ago, is a member of the textile industry association, and now has about 100 employees (40 full-time employees and 60 temporary employees). Most of its exports are sent to the United States, but it also exports to Europe and Japan. Elina's production and exports are carried out through a transaction contract with brokers and buyers who come to visit, and Elina does not exploit its own markets.

Mr. Amatya said that the future is definitely not bright for the textile industry.

He cites two sets of factors; one of them long-term, the other short-term. The short-term factors are the quota (export allocation)system in America, the chief export destination, the criticism from Europe and the United States of the use of child labor and chemical dyes to make carpets and the closure of its markets to export.

The long-term factors to hold one's ground in this industry against competing countries having cheap labor costs and, moreover, technical strength (China, Vietnam, Bangladesh, Sri Lanka, etc.), so large profits cannot be made even if great amounts of management work are undertaken.

He also told us that Elina's activities at the time of the survey were only 10% of what they were at its peak.

The managers of the company told us that these factors are making them look for an alternative industry, but they are quite worried because they are unable to find a desirable alternative.

The above discussion showed us the limits to the textile industry's ability to absorb employment.

2 Ministry of Housing and Physical Planning

Dates of visit : 13 and 17 July 1995

Person visited : Mr. Shambhu Sharan Prasad, Secretary
Mr. Mahendra Snbba, Town Controller

Summary of discussions :

We visited this ministry twice during the survey period. On our first visit, the ministry's secretary gave us a general description of Nepal's urban planning. The highlight that plan is zoning in the city of Kathmandu. On the second visit, the town controller, Mr. Snbba, guided us in an on-site inspection of the zoning project.

The creators of the zoning project in Nepal have used Japan's experience as reference. Many Japanese experts have visited the ministry. The zoning project is implemented in these steps: 1) The policy planning agency selects large lots with structures of comparatively small area on them; 2) The agency gets the landowner to agree with the zoning plan; 3) The landowner provides a certain percentage of the land in compensation for the government zoning and building roads, water supply and sewers; 4) The land provided is sold as commercial land to absorb some of the cost.

From as much as we could see of the on-site implementation of the zoning project, it is moving ahead comparatively satisfactorily. However, Mr. Snbba the town controller explained that: 1) Although part of the land is sold as commercial land, the only buyers are those with ample money to invest, and when they are the purchasers, it only serves to increase the disparity in income. 2) Some residents criticize the program because even though the government implements the zoning, it is the individual landowner who has to pay the high costs of preparing the land.

In addition, the organizations involved are making a very good effort but it was our feeling that the scale was to small for urban planning. However, when we consider the amount of financial resources available, there may be no other way to go about than through a gradual accumulation of these modest activities. We were also of the impression that its relationship to the city of Kathmandu was being neglected. These worries are common to many countries, including Japan.

3 United Nations Population Fund Population (UNFPA) in Nepal

Date of visit : 20 July 1995
Person visited : Mr. SK. Alok, Country Director
Summary of discussions :

After getting a general view of population, health and family planning in Nepal and exchanging opinions on UNFPA activities in Nepal at the UNFPA office, we obtained statistical information which UNFPA has prepared on population, health and family planning in Nepal.

The basic information had already been obtained, but we were very interested in the activities unique to UNFPA that include 1) operating sterilization surgery camps by teams of doctors and specialists 2) determining potential recipients of family planning through Mothers Groups 3) distributing kits containing such things as oral water supplement fluids, contraceptive devices and pharmaceuticals to female community health volunteers to promote maternal and infant health, which the women distribute to households on their periodic rounds.

One thing that interested us in the information we obtained, was that beginning in March this year, UNFPA is distributing contraceptive devices (pharmaceuticals) and placing boxes

containing condoms in all health posts and sub-health posts in Nepal, and that residents can pick up condoms there at no charge any time they need them. (More precisely UNFPA supplies the condoms, USAID (United States Agency for International Development) supplies the condom boxes, and the Nepalese government distributes them.)

However, there was no such system and there were no such boxes at the health posts we visited. UNFPA activities have not reached the terminal ends of the regional network.

4 United Nations Development Program (UNDP) in Nepal

Date of visit : 20 July 1995

Person visited : Ms. Carol Carter Long, Resident Representative

Summary of discussions :

The goals of UNDP activities are wide-ranging: 1) building tourism 2) creating women's income 3) strengthening local organizations, 4) supporting rural industries 5) creating local employment 6) preserving the environment 7) fostering entrepreneurial spirit among women 8) developing the infrastructure, 9) supporting urban management and 10) expanding education in rural areas. It would be impossible to introduce all of them. The fact that there is such a mountain of tasks to be accomplished clearly attests to the difficulty of the situation in Nepal.

The broad range of UNDP activities can provide important knowledge, i.e., about the use of national land. as a result of carrying out development plans that comply with regional needs, UNDP is pushing forward support activities that are distinctive to each region such as (1) promoting projects related to the development of tourist resources in regions where parks are located, i.e., mainly the mountain regions, by increasing the building of tourism facilities and supporting the preservation of the national environment, (2) promoting farming (such as sericulture) that fits well with the natural environment in the central hill region implements projects for creating employment and income for women, and (3) operating projects that support the activities of local private organizations in the middle western and far western sections.

Strangely enough, there are no development programs among those that Nepal has come up with that clearly divide the use of national land into categories. However, in pushing forward Nepal's economic development, the limited funds and personnel must be efficiently distributed and effectively applied. This is why we believe that a plan for the use of national land must be prepared as soon as possible.

5 United Nations Children's Fund (UNICEF) in Nepal

Date of visit : 20 July 1995

Person visited : Dr. Arun B. Thapa, Project Officer

Summary of discussions :

UNICEF started activities in Nepal in 1960, and in 1992 started a five year plan that laid the emphasis on programs based in the local community, and carrying out activities that emphasis education, i.e., compulsory and non-public education. It conducted an urban basic survey two years ago, in regard to urban problems, but unfortunately we could not obtain the information from it.

UNICEF considers maternal and infant problems very important and to that end works hard implementing programs of preventive vaccination and inoculation, but it was explained to us that among them are the very serious problems of women's health, of diarrhea that affects 45,000 children per day, and malnutrition that affects 65 percent of children 0-3 years old. It was also pointed out to us that in regard to city water and sanitation 1) the Health Ministry is one of the weaker agencies in the Nepalese government, 2) coordination with the Residence and Urban Planning Ministry consumes a lot of time and because of these first two factors 3) there are many areas in which the non-government organizations (NGO) are the only organizations to rely on.

Dr. Thapa also pointed out that there are also the unfortunate situations in Nepal, such as that of certain superstitions, which make it impossible for pregnant women to eat the right kinds of food before and after birth, particularly in the rural regions. However, getting rid of those superstitions is no easy task.

6 Administrative functions in Kavre Palanchok District

In this on-site survey, we visited the district of Kavre Palanchok, which is about one hour drive by car from Kathmandu, the capital, and which offers good comparisons for urbanization. Kavre district has a total land area of 1,396 km^2, and a population, in 1992, of 370,392. 89% of the labor force is in farming, forestry and fishing, the remaining 11% is in commercial, manufacturing and services. 75% of the population is Hindu, 23% is Buddhist.

The administrative organizations in Nepal, are the district, municipality, village, and ward, and the offices administering each of these are the district development committee (D.D.C.) office, the municipal office, the village development committee (V.D.C.) office. In Kavre district there are two municipal offices and 93 V.D.C.'s. Dhulikhel and Banepa which are equivalents on the municipal level, and the main towns in Kavre Palanchok. In Dhulikhel, the D.D.C. office for Kavre Palanchok is located. The representatives of these offices, the chairman, the vice-

chairman and the mayor are elected officials.

In this survey, we visited the Kavre Palanchok D.D.C. office, the Dhulikhel Municipal Office and the Panchkhal V.D.C. office. Given below is a simple explanation of the activities of each office.

(1) Kavre Palanchok D.D.C. office

Date of visit : 16 July 1995

Person visited : Mr. Krishna Prasad Sapkota, D.D.C. Chairman and staffs

Summary of discussions :

The D.D.C. office staff are all national civil servants. The office has departments which plan, operate and supervise the activities of the entire district, and departments that are in charge of education, farming, health, forestry, water, irrigation, regional development and women's development. On this visit, all of the executives of these departments were in attendance to explain the situation to us. Of the 15 staff members that were there, the only woman was the one in charge of the women's development department. The women's development department was set up in 1983. There are 14 V.D.C. and 84 wards in Kavre district.

The areas which seem to be most in need of aid at the present time are 1) water facilities 2) roads, and 3) access to farmers' markets. The main source of water supply for all of Kavre district is riverine and 36 % of the people obtain water from wells. Only 2% of the underground water is purified. The budget for district operations allocates 12% to water supply, making it the second most important area after health which gets 14%.

(2) Dhulikhel Municipal Office

Date of visit : 14 July 1995

Person visited : Mr. B.P. Shrestha, Mayor of Dhulikhel and staffs

Summary of discussions :

The population of Dhulikhel in 1991 was 9,812. It is the central urban area in Kavre and they are aggressively grappling with many regional development projects such as the construction of a university and hospital. The mayor and his staff are all very eager to get the development of Dhulikhel underway and they showed us around the projects listed below.

① The Dhulikhel Hospital Construction Project

This project is purposed at upgrading the medical facilities and health of Kavre district of which Dhulikhel is the center, and is to construct a hospital through cooperation between local organizations and the non-governmental organization NEPALIMED, which was founded in Austria. NEPALIMED is providing support with parts of the funds necessary for hospital construction and is simultaneously participating in project planning and execution. Most of the construction is complete, the 12,776 m^2 of land the hospital is on was contributed by 22

landowners. The hospital is scheduled to provide services for the approximate 10,000 residents of Dhulikhel and for approximately 100,000 residents of Kavre district.

② Kathmandu University

Kathmandu University is a private college established in December 1991. The Prime Minister of Nepal is the present President of the university, and the previous President was the Minister of Education. Natural science, management, engineering and education departments have been set up. Right now the number of students is small, only 360, but by the first year of the 21st century, 2001, they intend to have 3,000 students. The tuition of 30,000 Rs was set right after the establishment of the university, and it is quite a bit higher than the 1,000 Rs tuition at the national Toribuban University. Individual contributions have been used to build the school buildings, the donors being in Switzerland, Sweden, Japan and Nepal.

③ Dhulikhel Water Supply Project

The Dhulikhel Water Supply Project is designed to answer the desires of the Dhulikhel residents for drinking water supply that will replace their wells as the population increases, and it is being promoted through aid from Germany. The operation of the project is in the hands of a committee made up of people selected from the residents.

One of the major features of this water supply projects is that the water is taken from a location that is several tens of kilometers from, and higher in altitude than, Dhulikhel and the water is supplied and treated using energy derived from that difference in altitude between the water source and the town. It is a gravity-fed water supply facility. The final water treatment facility, which is separated from the town and was observed by our survey group, uses a natural filtration system in which several basins are set in rows beginning with one containing large-grained gravel to one containing small gravel, the gravel in the basins acting as filters.

As can be seen from the above rough description, this water supply project is superior because it has the advantage of fitting into Nepal in 1) having simple facilities that obtain, supply and treat water and use the topography of the mountain regions, which 2) holds down the cost for construction and 3) makes it easy for residents to maintain and run.

However, there are some points of attention that need to be directed toward water quality. When asked about water quality, we were told that it was okay for Nepalese to drink but that they could not guarantee it would be okay for Japanese to drink. This level of water quality is probably attributable to the simplicity of the final treatment facility. In other words the advantages of being an inexpensive facility easy for the residents to operates is also a disadvantage in that the quality of water is sacrificed.

Despite those deficiencies, that fact that there have been no problems with water quality is probably due to the maintaining of good natural conditions in regard to the water and the surrounding environment. However, there are no guarantees that the purity of the water it its

source will be sustained. The reason for that is that there is in Nepal a tradition of building houses on the top of small mountains and hills and the closer the source of the water is to the center of the city, the more likely it is to be contaminated. We were unable to observe the water source on this trip. However, if we take the increase in population and the expansion of the town limits into consideration, it will probably be difficult to dismiss this problem.

④ Women's Skill Development Committee

This facility was set up for the purpose of providing women with economic means. Both administration and the NGOs are actively working on the development of women. Training is conducted at this facility in three month sessions and at the time we visited, there were seven or eight women studying batik dying. During the winter, the center trains people in knitting things like socks. The finished articles are sold at market and the profits are shared in use.

(3) Panchkhal V.D.C. Office

Date of visit : 16 July 1995

Person visited : Mr. Rudra Bahadur Baniya, V.D.C. Chairman and staffs

Summary of discussions :

The village of Panchkhal has a population of 10,470, 94% of which is engaged in farming, 2% in services, and the remaining 4% in the operation of small shops. 30% of the farm fields are irrigated, and the crops grown are potatoes, tomatoes, corn, wheat and chili peppers, most of the potatoes and tomatoes being shipped to Kathmandu. There is a strong desire now to have irrigation and water supply facilities installed there. Since 1979, the Japanese NGO JOICFP (Japanese Organization for International cooperation in Family Planning, Inc.) has been operating a family planning project in Panchkhal and that has lead to great improvements in the health of mothers and children in the village.

In Panchkhal, we visited a school and health post (to be described later). The school was built there 30 years ago, and Mr. Damodar Adhikari, the Principal, explained the situation to us. The grades from 1-5 are elementary school, the grades from 6-8 are middle school and the grades from 9-10 are senior high school. The school has a total of 1,000 pupils and 22 teachers. The government pays the teacher's salaries. There is no tuition for elementary and middle school, and although the high school now charges 60 Rs per month for tuition, it will be tuition free starting from the next fiscal year. About 15% of the students drop out, and the general thinking there is that education for girls to make them literate is all that is necessary. The building is one story, low structure, and there are slate boards and wooden chairs for three pupils to sit in the classrooms. The school year is from January to December and summer vacation is 60 days long. Classes are 45 minutes long and school lasts from 10:00 a.m. to 4 p.m. The school was in summer vacation on the day we visited, but along the way we met several girls going to a well to draw watter and a boy tending cattle. Many students are absented from school during busy

farming periods like planting and harvest.

7 Medical facilities in Nepal

The Kingdom of Nepal is made up of several levels of administrative districts, generally speaking there are five levels: the central, the five regions, 14 zones, 75 districts, 3395 village development committees, and 36 municipalities.

Medical facilities in Nepal (we are excluding from this report the Ayurvedic herbal medicine dispensers), are distributed throughout the country in line with these administrative districts. More specifically, there is the Central Hospital on the central level, the regional hospitals on the regional level, the zone hospitals on the zone level, and the district hospitals on the district level. The administrative divisions on the fifth and lower levels become quite intricate, so we will not explain them here, but it is on those levels that are located the primary health centers, health posts and sub-health posts.

Medical facilities are available on all levels from the first to the fourth, but are some areas on the fifth level and below that do not have medical facilities because of the lack of financial resources. This is particularly true of the health post, the central facility in village medical care, which is very important to local residents. During this survey, we visited the following two health facilities. (See the map of Health Post)

(1) Nara Health Post

Date of visit : 16 July 1995

Person visited : Mr. Sanubabu Gautam, Health Assistant

Summary of discussions :

The Nara Health Post was built with Japanese aid and went into service eight years ago. This health post has a consulting room, treatment room, pharmacy room, classroom, and preparation room. The main employees are the director (health assistant), one nurse, one nurses aid, one midwife, and one boy Friday (piyon). There are also eight village health workers, who are not stationed full-time at this health post. Although health assistants are not full-fledged doctors, they have completed high school and then two years of medical training and are recognized as able to perform basic medicine.

The health post sees from 30 to 40 patients a day. The government dispenses six months worth of drugs to the post, and they are provided basically free of charge. However, due to difficulties in financing, the government is not replenishing drugs and the supply is near bottom. For that reason the post will see only those patients who have paid three rupees for the initial visit, the health assistant writes out a prescription for the needed pharmaceuticals and the patient takes the prescription to the local chemist in town and pays out of his/her own pocket.

Activities at the Nara Health Post seem to be at a low ebb. The major reasons for that are 1) the pharmaceutical situation, but also 2) there is a town with a large hospital in it about 30 minutes walking distance, 3) bad roads prevent the sick and injured from easily getting to Nara Health Post. Of these factors, 2) seems to be the most important.

Have a large hospital so close by is peculiar to this health post. The next health post we looked at is very important to the local people.

(2) Panchkhal Health Post

Date of visit : 16 July 1995

Person visited : Mr. Cheta Nath Kafley, Assistant Health Worker

Summary of discussions :

The central facilities of the Panchkhal Health post, at the present time, its consulting room, treatment room and pharmacy, the parts of the facility which are now in operation make it smaller than the Nara post. A second floor section is now under construction with the help of the local residents. The five major employees of this post are the health assistant (director), two nurses, two nurses aid-midwives, an office worker and five boys/girls Friday (piyon). In addition, there is a worker in charge of malaria and one in charge of family planning, ten village health workers and two others attached to this health post.

The consulting system and method of drug dispensing are the same as the Nara Health Post, with the exception of the charge for the first visit, which is two rupees. Despite that, Panchkhal Health Post is much more active, seeing from 40 to 60 patients a day. One of the reasons for that greater activity is its much more remote location, with no large hospital nearby, meaning that the rural people have to rely on the health post more. We can see how much confidence the people have in this health post because of their willingness to help in the construction of its second story.

The health post is truly a life line to the people of the local community.

8 Problems in Urbanizing Nepal

The urbanization of Nepal is moving ahead at a very rapid pace but the problems of urbanization, including garbage disposal and treatment, particularly in Kathmandu, and the building and expansion of roads and sewers, are becoming more pronounced. Most of these problems have existed for sometime in Nepal, but the increased population of Kathmandu and the delay in building infrastructure and in implementing regulations to deal with those problems, is turning them into urbanproblems. That makes deliberate, orderly urban planning in Nepal at its early stage an acute necessity.

The following is a Summary of the two main problems as gleaned from local newspapers,

are covering these issues very thoroughly.

(1) The Problem of Garbage Disposal/Treatment

In Kathmandu, the capital of Nepal, there has been a recent stop in garbage treatment, the garbage standing in mountains along the side of the road where it has been discarded. This is attributable to the concentration of population and industry and the rise in consumption levels in the capital area which has led to an increase in refuse discharge. In addition, the lack of appropriate collection and treatment of trash is generating extremely unsanity conditions with the mountains of trash growing in size, the trash spreading out into the roads to make obstacles to traffic, and the cows and dogs gathering to rummange through the refuse.

In 1979, the national government, with help from West Germany, established the Solid Waste Management and Resource Mobilization Center, as a government organization. However, after this organization was set up the Kathmandu city government could not handle all of the costs for its operation, national government and Kathmandu authorities disagreed about how the center was to be operated, and German aid stopped temporarily, all of which caused the garbage collection and treatment system to operate unsatisfactorily since the summer of 1993. In regard to garbage treatment, the closing of the Mulpani garbage dump in January 1994, is forcing people to bury garbage at the proposed site of a road on the Bishnumati River, which is adjacent to Kathmandu on the west side. At the time of the present on-site survey, we saw a scene of trucks filled with mountains of garbage standingin line on a bridge waiting to dump their loads and bulldozers burying the garbage at the river source.

An estimated 500 cubic tons of garbage comes out of Kathmandu city every day. Immediate measures to deal with this problem are mandatory both for the sanitary needs of the people and for the scenic beauty of the Kathmandu region as a tourist area.

(2) Air Pollution

Another serious environment problem in Kathmandu is air pollution. In the past ten years. the air quality has grown so bad that where once the Himalayan mountains could be seen from the city, there are now only a few days a year on which the mountains can be seen, and many people in the city wear masks to protect themselves from the smog. This is a serious problem for Nepal which has prided itself on becoming a tourist country serving mountain climbers and trekkers, a problem which has been discussed not just locally but in newspapers as far away as Japan.

The air pollution problem is being caused by the increase in the population of an urbanizing Kathmandu, the exhaust from the increased number of motor vehicles that accompanies that urbanization, and the increased amount of dust and particulate matter from the brick and cement factories that have been built in the rush to development. The increase in motor vehicles is seen particularly in the three-wheeled taxies imported from India since 1990 and the Japanese-made

used cars and trucks now running through the city belching forth huge clouds of black smoke. There are 75,690 motor vehicles operating in the Kathmandu basin and they reportedly emit an annual total of 55,506 tons of carbon monoxide, 5,046 tons of nitric acid, 1,007 tons of hydrocarbons, and 840 tons of sulfuric acid. Of the 139,434 vehicles registered (in Poush 2050 BC), 54.87 percent are operated in the Kathmandu basin, a number that is increasing at 13 percent per year. 35 percent of the buses and 38 percent of the trucks have been on the road for 15 years or more, and 24 percent of the buses have been in operation for 20 years or more.[*1]

The topographic bowl structure of the Kathmandu basin limits the flow of wind and causes the contaminated air to remain in the basin. The situation worsens in the winter when cold air blows down off the mountains and th ewarm air acts like a lid. Experts predict that if these conditions persist, Kathmandu's air quality in the next ten or fifteen years will be worse than that of Mexico City, now regarded as the world's most polluted.

[*1] : Kathmandu Post, 28 Jan. 1995.

REGION: CENTRAL ZONE: BAGMATI DISTRICT: KAVRE

Krishna Man Shrestha, Cartographic Art, Chikanmugal Tole. HMG, Nepal. UNFPA (United Nations Population Fund, Nepal.)

POPULATION DISTRIBUTION & HEALTHFACILITIES

Ilaka No.	VDC/ Mpt.	Population	H.P.	Sub H.P.
1.	7	23,988		2
2.	7	25,158	1	2
3.	7	23,413	1	2
4.	8	24,291	1	2
5.	6	22,823	1	2
6.	7	21,451	1	2
7.	7	19,769	1	2
8.	6	22,528		2
9.	6	27,266		2
10.	5+1	34,829		1
11.	5	24,200	1	2
12.	4+1	37,419	1	1
13.	5	25,183		1
14.	7	17,453	2	1
15.	6	16,103		2
Total	93+2	365,874	10	26

HEALTH INSTITUTIONS

- HOSPITAL (H.M.G.)
- HOSPITAL (Private)
- HEALTH CENTER
- PRIMARY HEALTH CARE CENTER
- NGO CLINICS
- HEALTH POST
- SUB HEALTH POST
- AYURVED AUSHADHALAYA
- FOOD ASST. HEALTH INST. (WFP)
- POPULATION (June, 1994 est.) (1.dot = 1000 Persons)

LEGEND

- INTERNATIONAL BOUNDARY
- DISTRICT BOUNDARY
- ILAKA BOUNDARY & NUMBER
- MAIN RIVER & LAKE
- ALL WEATHER ROAD
- SEASONAL ROAD
- TRACK
- DISTRICT HQS
- MUNICIPALITY
- V.D.C.
- CONTOUR LINE

SCALE
1: 250,000
10 5 0
Kms.

Contour interval 500 Meters.

Chapter Six

Survey Members and Itinerary

Committee in Japan

Toshio Kuroda	Director Emeritus, Nihon University Population Research Institute
Hidesuke Shimizu	Professor, Department of Public Health and Environmental Health, The Jikei University School of Medicine
Minoru Kiryu	Professor, College of International Studies, Chubu University (leader of the field research team)
Tomomi Otsuka	Associate Professor, Department of Humanities and Science, Nihon University (member of the field research team)
Tsuguo Hirose	Executive Director, Secretary General, Asian Population and Development Association (APDA)
Masaaki Endo	Vice Councilor, Asian Population and Development Association (APDA)

Osamu Kusumoto	Senior Researcher, Asian Population and Development Association (APDA)
Haruyo Kitabata	Staff, Asian Population and Development Association (APDA) (member of the field research team)

Cooperators (Survey in Nepal: July 9 - July 22, 1995)

Embassy of Japan in Nepal

H. E. Mr. Shigenobu Yoshida	Ambassador Extraordinary and Plenipotentiary
Mr. Hisaki Indou	First Secretary

Nepal Parliament Secretariat

Mr. Bishnu Dutta Uprety	Joint Secretary, Parliamentary Information Division
Mr. Manohar Prasad Bhattarai	Committee Secretary, Foreign Relations & Human Rights Committee

Ministry of Health

Dr. B. D. Chataut	Chief, Policy, Planning, Foreign Aid and Monitoring Division

Ministry of Finance

Mr. Madhab P. Ghimire	Joint Secretary, Foreign Aid Co-ordination Division

Ministry of Housing & Physical Planning

Mr. Shambhu Sharan Prasad	Secretary
Mr. Umesh B. Malla	Joint Secretary, Human Settlement and Environment Division

Ministry of Tourism & Civil Aviation

Mr. Prachunda Man Threstha	Act. Director General, Department of Tourism

Department of Industries

Mr. Bhanu Prasad Acharya	Director General

Mr. Lakshmi Bahadur Karmacharya	Deputy Director

National Planning Commission (NPC) Secretariate

Mr. Shiva Bhakta Sharma	Joint Secretary, Chief, Population Division & Social Service Division
Mr. Nir Bahadur Karki	Research Officer, Population Division

National Planning Commission

Dr. Prabha Basnet	Act. Special Secretary
Mr. Dongol, Hiralal Singh	Joint Secretary, Chief, Economic Policy, Trade and Industry Division

Nepal Water Supply Corporation

Mr. N. M. Pradhan	General Manager
Mr. Noor Kumar Tamrakar	Manager
Mr. Swatantra R. Tuladhar	Deputy Manager
Mr. Shashindra Man Patrabansh	Manager
Mr. Pabindra Man Pradhan	Assistant Manager

Central Bureau of Statistics

Mr. K. R. Sharma	Director General

Japan International Cooperation Agency (JICA) Nepal Office

Mr. Masao Watanabe	Resident Representative
Ms. Yukari Ono	Assistant Resident Representative

Kathmandu Municipality

Mr. P. L. Singh	Mayor

Kathmandu Town Development Committee

Mr. Mahendra Snbba	Town Controller

Elina Garment Industries P. Ltd.

Mr. kedar B. Amatya	Managing Director

Nepal Association of Travel Agents (NATA)

Mr. Rabendra Raj Pandey	President

Mr. S.P. Shrestha	Second Vice President
Mr. Nirmal Kumar Bhandari	Executive Member
Mr. Arjun Sharma	Executive Member
Mr. Dhurba Narayan Shrestha	Executive Member
Mr. Bishnu Subedi	Executive Secretary

Kavre Palanchok District Development Committee

Mr. Krishna Prasad Sapkota	Chairman
Mr. Kanchha Ram Tamang	Vice Chairman
Mr. Birendra Prasad Parajuli	Village Consultants
Mr. P. P. Neupane	Chief District Administrative Officer
Dr. Babu Ram Marasini	District Health Officer
Mr. Rameshwar Regmi	Local Development Officer
Mr. Rishi Kanta Chimine	District Management Officer
Mr. Lok Nath Deoju	District Agriculture Development Officer
Mr. H.P. Shrestha	District Education Officer
Mr. B.J. Poudel	Planning and Administrative Officer
Ms. Anita Adhikare	Women Development Officer
Mr. Binod Chandra Jha	District Water Supply Officer
Mr. Jhapendra Raj Pokhrel	Assistant Engineer
Mr. Ramjee Nepal	Office in charge
D.D.C. members	

Dhulikhel Municipality

Mr. B. P. Shrestha	Mayor
Mr. Subash Kaji Shrestha	Deputy Mayor
Mr. Harj Prasad Dahal	Executive Officer
Ward members	

Nara Health Post

Mr. Sanubabu Gautam	Health Assistant

Women's Skill Development Committee

Ms. Nirmala K. Yogal Shrestha	Chairperson

Kathmandu University

Prof. Suresh Raj Sharma	Vice Chancellor

Panchkhal Village Development Committee

Mr. Rudra Bahadur Baniya	Chairman
Mr. Ranji Danuwar	Vice Chairman
Mr. Haui Prasad Pant	Secretary
Ward members	

Panchkhal Health Post

Mr. Cheta Nath Kafley	Assistant Health Worker

Sarba Mangala Secondary School

Mr. Damodar Adhikari	Head Master

United Nations Population Fund (UNFPA) in Nepal

Mr. S. K. Alok	Country Director, Nepal
Mr. D. B. Lama	Senior Programme Officer, Health/Family Planning

United Nations Development Programme (UNDP) in Nepal

Ms. Carroll Carter Long	Resident Representative
Mr. Manoj Bahadur Basnyat	Sustainable Development Advisor (SDA) Chief, Programme Unit 1
Mr. Nabendra Raj Dahal	UNDP

United Nations Children's Fund (UNICEF) in Nepal

Dr. Arun B. Thapa	Project Officer, CDD/ARI, Health & Nutrition Section

Interpreter

Mr. Madhab R. Shrestha

SURVEY ITINERARY

(July 9 - July 22, 1995)

Date	Activities
July 9 (Sun.)	· Departure from Narita. · Arrival at Bangkok.
July 10 (Mon.)	· Departure from Bangkok. · Arrival at Kathmandu. · Discussions on outline of survey with local counterpart.
July 11 (Tue.)	· Visit to Ministry of Health. Briefing on health and medical situation in Nepal by Dr. B.D. Chataut, Chief of Policy, Planning, Foreign Aid and Monitoring Division. · Visit to Jawalakhel Handicraft Center P. Ltd. and observe to manufacture carpets. · Observation of Patan Durbar Square. · Courtesy call on H.E. Mr. Shigenobu Yoshida, Ambassador of Japan to Nepal. Briefing on outline of survey with Mr. Hisaki Indou, First Secretary, Embassy of Japan in Nepal.
July 12 (Wed.)	· Visit to National Planning Commission (NPC). Briefing on population and family planning in Nepal by Mr. Shiva Bhakta Sharma, Chief of Population Division & Social Service Division. · Visit to Nepal Water Supply Corporation. Briefing on water supply and drainage in Nepal by Mr. N.M. Pradhan, General Manager. Observation of a water supply plant which was built with Japanese financial assistance (ODA). · Visit to Central Bureau of Statistics. Briefing on national statistics in Nepal by Mr. K. R. Sharma, Director General and collecting data and material on population, economy and society. · Visit to Elina Garment Industries (p.) LTD.. Briefing on garment industry in Nepal by Mr. Kedar B. Amatya, Managing Director.
July 13 (Thu.)	· Visit to National Planning Commission (NPC). Briefing on urbanization in Nepal by Dr. Prabha Basnet, Act. Special Secretary.

	· Visit to JICA Office in Nepal. Briefing on health, medical and urban development assistant to Nepal by Mr. Masao Watanabe, Residential Representative. · Visit to Ministry of Housing & Physical Planning. Briefing on urban development in Nepal by Mr. Shambhu Sharan Prasad, Secretary. · Visit to Kathmandu Municipality and pay a courtesy call on Mr. P. L. Singh, Mayor of Kathmandu. Briefing on urban development in Kathmandu.
July 14 (Fri.)	· Move to Kavre Palanchok District. · Visit to District Administrative Office in Kavre Palanchok district. Briefing on the administrative system of Kavre Palanchok district by Mr. P. P. Neupane, Chief District Officer. · Visit to Dhulikhel Municipality and pay a courtesy call on Mr. B.P. Shrestha, Mayor. Observation of a water supply plant in Dhulikhel built with a financial assistance of Germany, Women's Skilled Development Committee, Dhulikhel Hospital under construction and Kathmandu University.
July 15 (Sat.)	· Visit and observe the road toward the Nepal-China border areas which was built with financial assistance of China.
July 16 (Sun.)	· Move to Kavre Palanchok District. · Visit to Nara Health Post. Briefing on local medical care situation by Mr. Sanubabu Gautam, Health Assistant. · Visit to Village Development Office in Panchkhal. Briefing on Panchakhal V.D.C. in general by Mr. Rudra Bahadur Baniya, Chairman, and other officers. · Visit to Panchkhal Secondary School and Panchkhal Health Post. · Briefing on school system by Mr. Damodar Adhikari, Headmaster and briefing on medical care system by Mr. Cheta Nath Kafley, Assistant Health Worker. · Visit to District Development Office of Kavre Palanchok. Briefing on the administrative system and development activities in Kavre Palanchok destrict by Mr. Krishna Prasad Sapkota, Chairman, and other officers.
July 17 (Mon.)	· Visit to Department of Industries. Briefing on industries in Nepal by Mr. Bhanu Prasad Acharya, Director General. · Observation of land readjustment in Kathmandu city carried out by

	Kathmandu Town Development Committee and briefing by Mr. Mahendra Snb ba, Town Controller of Kathmandu Town Development Committee. · Visit to Ministry of Tourism & Civil Aviation. Briefing on the tourism policy in Nepal by Mr. Prachunda Man Threstha, Act. Director General.
July 18 (Tue.)	· Arrangement of collected data and materials and collection of more materials.
July 19 (Wed.)	· Visit to Nepal Association of Travel Agents (NATA). Breifing on tourism in general by Mr. Rabendra Raj Pandey, President. · Drive around the ring road of Kathmandu City and observe a brick plant and a cement plant.
July 20 (Thu.)	· Visit to UNFPA Nepal Office. Briefing on UNFPA population assistance to Nepal by Mr. S.K. Alok, Country Director. · Visit to UNDP Nepal Office. Briefing on UNDP development assistance to Nepal, especially for urban planning by Ms. Carroll Carter Long, Resident Representative. · Visit to Ministry of Finance. Briefing on Economic Plan of Nepal by Mr. Madhab P. Ghimire, Joint Secretary of Foreign Aid Co-ordination Division. · Visit to UNICEF Nepal Office. Briefing on child issues in Nepal by Dr. Arun B. Thapa, Project Officer. · Report on survey results to First Secretary Hisaki Indou, Embassy of Japan.
July 21 (Fri.)	· Departure from Kathmandu. · Arrival at Bangkok. · Departure from Bangkok.
July 22 (Sat.)	· Arrival at Narita.

Appendix Documents and Map

List of Documents

1. Bhandari, H.M., "*Drug offence and its control mechanism in Nepal*".

2. Central Bureau of Statistics, National Planning Commission Secretariat, NEPAL. 1994. *Census of Manufacturing Establishments, Nepal 1991-1992, National Level.*

3. Central Bureau of Statistics, National Planning Commission Secretariat, NEPAL. 1994. *A Compendium on the Environmental Statistics of Nepal, Issues and Facts.*

4. Central Bureau of Statistics, National Planning Commission Secretariat, NEPAL. 1995. *1991 Nepal Population Data Sheet.*

5. Central Bureau of Statistics, National Planning Commission Secretariat, NEPAL. 1995. *Population Monograph of Nepal.*

6. Central Bureau of Statistics, National Planning Commission Secretariat, NEPAL. 1995. *Statistical Year Book of Nepal 1995.*

7. Central Bureau of Statistics, NEPAL. *Nepal Living Standards Survey, Household Questionnaire.*

8. Devendra Shrestha & Associates. 1994. *Report on Vehicular Pollution and Vehicular Test Yard at KVTP Office in Kathmandu Valley for Kathmandu Valley Pollution Control Project, Ramshahpath.*

9. Ojha, Yogendra Najh, "*Drug menace - A problem of global concern*".

10. Gautam, Madhav. 1994. "*Delivery of Health and Family Planning Services Status and Issues, Paper Prepared for National Seminar of Parliamentarians on Population and Development, Population and Social Committee, House of Representatives. (March 25-26, 1994)*"

11. Kathmandu Municipality, Kathmandu Urban Development Project, Project Coordination Committee. 1994. *Municipal Infrastructure Improvement Project.*

12. Ministry of Finance, NEPAL. 1995. *Budget Statement of the Fiscal Year 1995-96 for Public Information.*

13. Ministry of Finance, NEPAL. 1994. *Economic Survey, Fiscal Year 1993-94.*

14. Ministry of Finance, NEPAL. 1995. *Economic Survey, Fiscal Year 1994-95.*

15. Ministry of Health, NEPAL. 1992. *Nepal Fertility, Family Planning, and Health Status Survey, NFHS, 1991, A Preliminary Report.*

16. Ministry of Health, NEPAL. 1993. *NEPAL Fertility, Family Planning and Health Survey 1991 -Main Report-.*

17. Ministry of Health, Department of Health Services, NEPAL. 1994. *Annual Report FY2050/ 51 (1993/1994).*

18. Ministry of Health, Department of Health Services, NEPAL and UNFPA. 1994. *Atlast of Health and Population Information 1994 : Atlas of Population Distribution and Health Facilities with Regional/ District/MCH Profiles.*

19. Ministry of Health, Department of Health Services, NEPAL. 1994. *PHC Outreach, National Strategy 1994.*

20. Ministry of Health, Policy, Planning, Monitoring and Supervision Division, NEPAL. *National Health Policy 1991.*

21. Ministry of Health, Policy, Planning, Monitoring and Supervision Division, NEPAL. 1992. *Health Information Bulletin Volume 8.*

22. Ministry of Health, Policy, Planning, Monitoring and Supervision Division, NEPAL. 1993. *Health Section of Eighth Plan (2049-2054).*

23. Ministry of Health, NEPAL and UNICEF. 1994. *Acute Respiratory Infections (ARI) Among Children In Nepal, a focussed ethnographic study in selected districts.*

24. Ministry of Home Affairs, Narcotic Drug Control Division, NEPAL. 1992. *Narcotics Control Bulletin, Year 1 - No.2 (November 1991 - March 1992).*

25. Ministry of Home Affairs, Narcotic Drug Control Division, NEPAL. 1992. *Narcotics Control Bulletin, Year 1 - No.3 (March - July 1992).*

26. Ministry of Home Affairs, Narcotic Drug Control Division, NEPAL. 1993. *Narcotics Control Bulletin, Year 2 - No.1 (Aug- Jan 1993).*

27. Ministry of Home Affairs, Narcotic Drug Control Division, NEPAL. 1993. *Narcotics Control Bulletin, Year 3 - No.1 (Jan- Dec 1993).*

28. Ministry of Industry, NEPAL. 1993. *Industrial Policy 1992, Foreign Investment and One Window Policy 1992, Foreign Investment and Technology Transfer Act 1992, & Industrial Enterprises Act 1992.*

29. Ministry of Industry, NEPAL under a UNDP/UNIDO Technical Assistance Project. 1993. *NEPAL Foreign Investment Opportunities.*

30. Ministry of Local Development, Solid Waste Management & Resource Mobilization Center, NEPAL. 1995. *Proposal For A Programme - Approach to The Environmental Management of Solid Waste And Resource Recovery In The Kingdom of Nepal.*

31. National Commission on Population, NEPAL. *"Proceedings of the National Seminar on Population and Environment, July 3-4, 1989, Kathmandu, Nepal." Ed. Basanta R. Bhattarai.*

32. National Commission on Population, NEPAL. 1990. *Developing a national system for environmental impact assessment, Proceedings of the first national workshop, 2-14 September 1990, Kathmandu, NEPAL.*

33. National Planning Commission, NEPAL. 1991. *Approach to the Eighth Plan 1992-97 (Draft).*

34. National Planning Commission, NEPAL. *"Background Papers to the National Conservation Strategy for Nepal, Vol I, Water Supply and Sanitation".*

35. National Planning Commission, NEPAL. 1992. *The Eighth Plan 1992-97.*

36. National Planning Commission Secretariat, Population Division, NEPAL. 1991. *NEPAL-Aspects of Population and Development: Annual Status Report, 1991.*

37. National Planning Commission, NEPAL in collaboration with IUCN - The World Conservation Union, Nepal National Conservation Strategy Implementation Programme. 1991. *Environmental Pollution in Nepal -A Review of Studies-.*

38. National Planning Commission, NEPAL in collaboration with IUCN - The World Conservation Union. 1991. *Environmental Education in Nepal -A Review-.*

39. National Planning Commission, Nepal in collaboration with IUCN - The World Conservation Union, National Conservation Strategy Implementation Programme. 1991. *Sources of Industrial Pollution in Nepal -A National Survey-.*

40. National Planning Commission / Environment Protection Council, NEPAL. 1994. *Nepal Environmental Health Initiative (NEHI).*

41. Nepal. "Draft: Executive Summary of National Report (Nepal), United Nations Conference on Environment and Development (UNCED 1992)"

42. Nepal, Mahendra K., *"Appropriate treatment facilities should be directed toward hardcore addicts".*

43. Nepal Health Initiative (NEHI). *"Conclusion and Recommendations of Consultative Meeting on Nepal Environmental Health Initiative (NEHI)".*

44. Regmi, D.N., D.D. Joshi, D.B. Thapa, and C.K. Gurung. 1988. *FINAL REPORT on The Existing Sanitary Condition of The Households In Kathmandu City.*

45. Shrestha, B.R. 1993. *An Analysis of Investment in Population Sector: Retrospect and Prospects, Nepal Project Research Center, for UNFPA Kathmandu Nepal.*

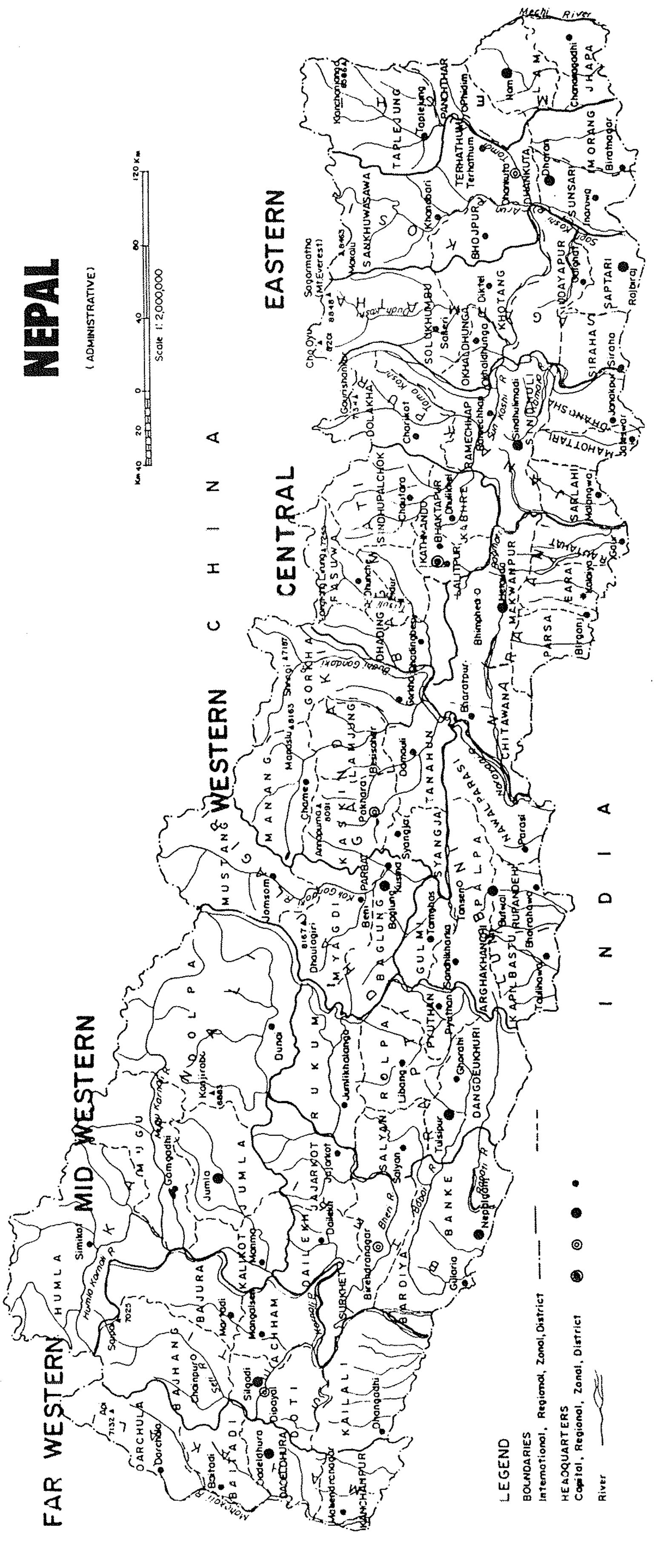
46. Tribhuvan University, Institute of Medicine. 1995. *The Profile of Institute of Medicine.*

47. United Nations Development Programme (UNDP). 1995. *Portraits of Our Partners.*

48. United Nations Development Programme (UNDP). 1993. *Development Co-operation NEPAL, 1993 Report.*

49. United Nations Population Fund (UNFPA). *UNFPA Projects in the III Country Programme for Nepal (1992 -1996).*

50. World Health Organization. 1994. *Nepal Environmental Health Initiative (NEHI) A National Programme For Agenda - 21 on Health and Environment in Sustainable Development.*


NEPAL
(ADMINISTRATIVE)
Km 40 20 0 40 80 120 Km
Scale 1: 2,000,000
FAR WESTERN
MID WESTERN
WESTERN
CENTRAL
EASTERN
C H I N A
I N D I A
LEGEND
BOUNDARIES
International, Regional, Zonal, District
HEADQUARTERS
Capital, Regional, Zonal, District
River
Mechi River