

Chapter 5 . Agricultural Development and Marketing Linkages in the Bagmati Zone

5.1 Introduction to the Bagmati Zone

Chapter four provided a general discussion of one approach to the development of a predominantly subsistence-oriented hill agriculture. It focussed on the discussion of a number of key components of such an approach. It argued the need for crop specialization by ecozones, and emphasized the notion of inter-ecozone hill trade and rural-to-urban marketing linkages. Although hill agriculture already shows a high degree of multiple cropping, it is primarily subsistence oriented. The discussions in Chapter three clearly illustrated the economic and environmental difficulties inherent in such a system, especially under conditions of constant pressure of rapidly increasing population. Hill agriculture must not only be environmentally sustainable, it must also be productive. Recent changes clearly suggest that subsistence orientation, as in the past, is unlikely to fulfill both these conditions.

In this Chapter, an effort is made to review changes in the Bagmati Zone of Nepal which represents one of the better developed hill areas in the middle hills of Nepal. Changes here will indicate the practical problems and potentials associated with a strategy focussing on specialization and commercialization of hill agriculture. Although information associated with various types of changes are quite sketchy, there is enough to illustrate the nature of some of these major changes.

The Bagmati Zone lies in the Central Development Region of Nepal (see Map 5.1). It is one of the three zones in the country that does not contain any part of the Terai plains. Its importance, however, lies in the fact that it contains the Greater Kathmandu Valley region (GKV) with the capital city of Kathmandu and the two larger urban centres of Lalitpur and Bhaktapur.

This zone has 6.40 per cent of the total land area and in 1981, contained 12 per cent of the population or about 1.8 million people. Interestingly enough, its share in

total population declined slightly from 1971 when it accounted for 13 per cent. The population density per arable land (km²) in the zone increased from 690 in 1971 to 822 in 1981, while the national average for 1981 was 657 [CBS 1987]. The agricultural density of this zone is, however, close to the average hill density.

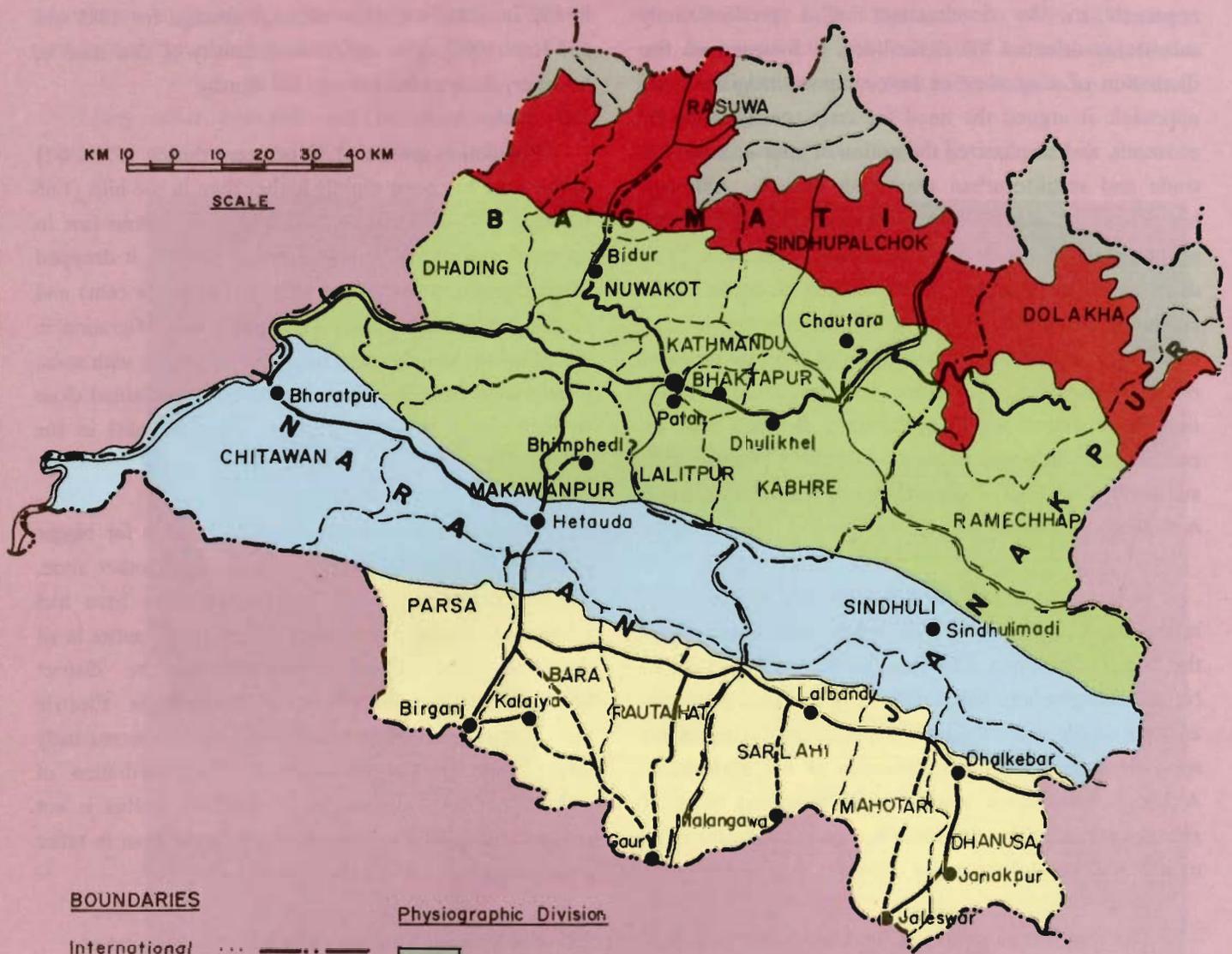
Population growth (1.75 per cent during 1971-1981) in the zone has been slightly higher than in the hills (1.65 between 1971-1981). If in 1971 this zone ranked first in terms of overall and female literacy, in 1981, it dropped to third position for overall literacy (29.10 per cent) and second for female literacy (17.9 per cent). Migration in the zone was mainly intra-zonal (49 per cent) with some in-migration from neighbouring zones. It contained close to half of the urban population (46 per cent) in the country [CBS 1987].

Development wise, this zone has had a far bigger share of the national investments than any other zone. The eight districts that comprise this zone have had relatively better access to development programmes in all the Five Year Plans. Practically all the district headquarters have been connected by roads. Electric power supply is being made available to increasingly larger parts of the rural areas. The distribution of institutional support services in different sectors is not only extensive, but also qualitatively better than in other parts of the hills.

5.2 Subregional Specialization and Development of Marketing

The construction of an extensive network of roads in this zone has led to the emergence of a number of subregions that are showing signs of agricultural specialization and market integration (see Map 5.2). Not only are various parts of the hinterland responding favourably, the GKV region is also indicating some positive changes in response to the development activities in the hinterland. There are signs of increasing economic

NUWAKOT DISTRICT & BAGMATI ZONE IN THE CENTRAL DEVELOPMENT REGION



BOUNDARIES

- International ... ————
 - Zonal ... - - - - -
 - District ... - - - - -
- ROADS**
- Metalled ... ————
 - Un metalled ... - - - - -
- Urban Centre ... ●

Physiographic Division

- High Himalaya
- High Mountain
- Middle Mountain
- Siwalik
- Tarai

MAP INDEX



integration although very little of this has been deliberately planned or for that matter, even been recognized as a major regional force. Many programmes are still haphazardly scattered across different districts. Different agencies are engaged in a wide range of district level programmes that neither support the forces of market integration, and specialization nor exploit economies of scale.

The first subregion is the GKV area itself where major changes can be seen in agricultural activities. Farmers in the valley are realizing lucrative returns from vegetable production. Wherever irrigation is available, more land is being brought under vegetable cultivation. One survey showed that in some settlement areas vegetable cultivation covered as much as 65 per cent of the area in Kathmandu while in Lalitpur and Bhaktapur it was slightly lower [DFAMS 1984].

To the east of GKV region lies the Kathmandu-Dhulikhel subregion extending to Chautara, Jiri, Dolakha and Southern Kavre. Major exports to GKV region are paddy, potatoes, livestock and some horticultural products. More recently, opportunities for agricultural trade with Lhasa in the north have expanded considerably in Panchkhal Valley and a number of other areas are also beginning to export agricultural products. Developments in specialization and trade, are however not to the extent that would be possible on the basis existing factor endowments and environmental conditions. The case of potatoes illustrates difficulties associated with changes. Potatoes, which have higher per hectare net income, higher return to labour and higher return to capital cost are found to be an extremely attractive crop, but only a small per cent of the potential area has been allocated to potatoes. Potato is a market crop rather than a subsistence crop in this area. It has not been an important part of the staple diet of the population. It must be sent to Kathmandu as it is difficult to store and cannot all be consumed locally. If marketed immediately, it fetches good off season prices. The greater the delay, the lower the price, as supplies from other areas start arriving. Farmers complain of major transport, storage and price problems. Although there are no local marketing organizations, some efforts are being made to form farmer groups for marketing [Pachico:1980].

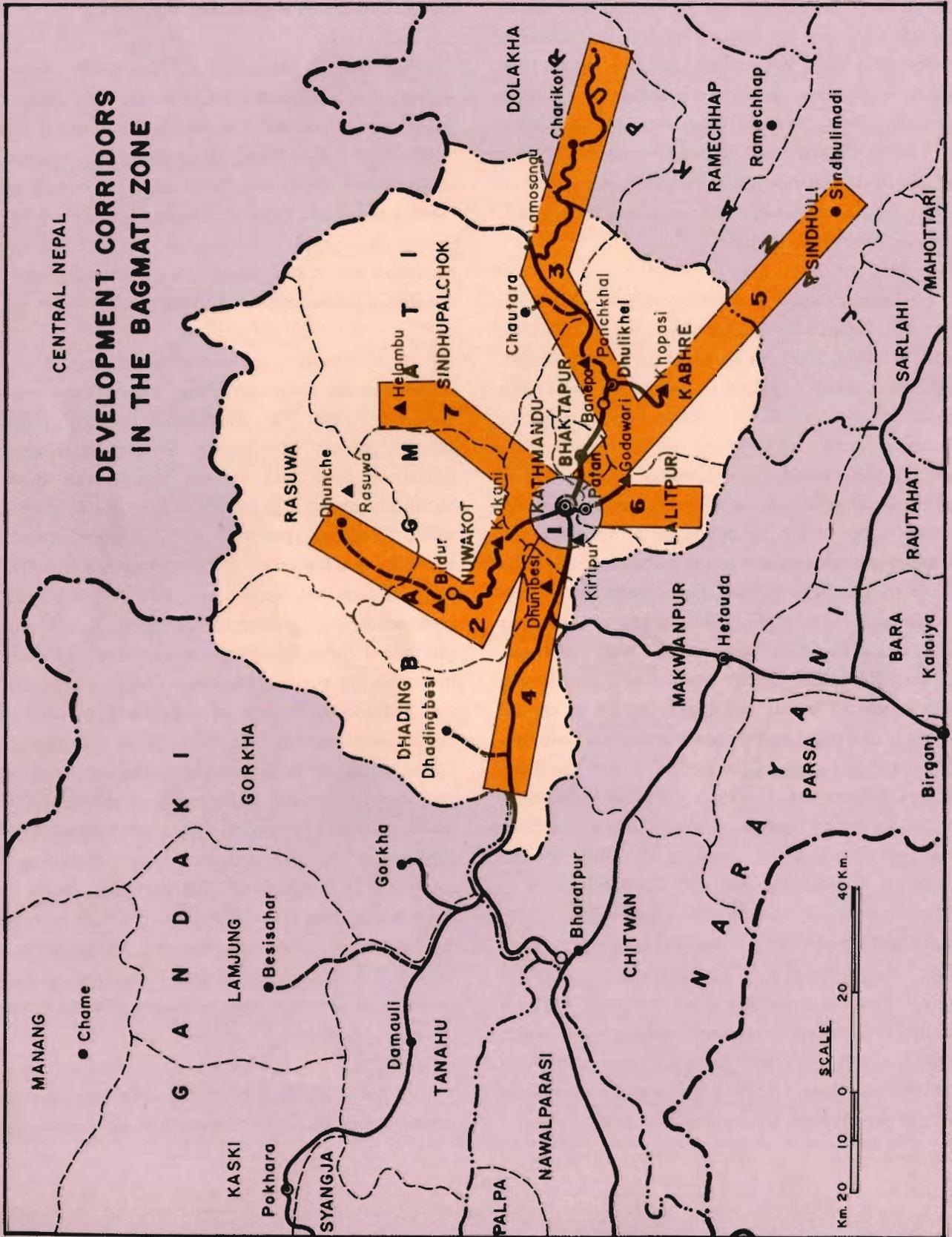
To the South-West lies the Kathmandu-Mugling corridor with large parts of Dhading district serving as the hinterland of GKV. Recently some major changes have been seen in agricultural specialization with focus on vegetable crops in selected areas. Commercialization of agriculture decreases markedly as one moves further away from the GKV region. Farmer awareness of improved agricultural practices has increased considerably, but agricultural production for the market has been restricted amongst larger farmers.

To the North-west of the GKV lies the Kathmandu-Trishuli corridor, with the two districts of Nuwakot and Rasuwa. This region also exports paddy, horticultural and livestock products to Kathmandu Valley. Some efforts have been made to promote apple farming in Rasuwa District, though progress has not been encouraging. Lack of transport has been a major complaint so far, but this situation is changing with the opening of the new road link to the north.

A study undertaken in Nuwakot during the middle seventies made some interesting observation which are valid even today. The study found very high cropping intensity already in existence, but its contribution to household food and income needs were minimal. Significant changes in farmer income levels were seen where cropping patterns were slightly altered to specialize in a few crops. For the temperate zone (higher altitude) farm net income increased four fold through increases in crop acreage for vegetables. In the case of subtropical zone, incomes more than doubled by increasing the share of leguminous crops and vegetables and reducing the share of grains and livestock. The exercise was conducted for other altitude zones and, in all cases, specialization in environmentally favourable crops was seen to result in substantially higher income, even under existing technology and cultivation practices [Calkins 1976]. The important point underlying this exercise is that households that specialize should trade for potentials offered in trading could benefit households in all ecozones.. While these research findings are over a decade old, they clearly illustrate the type of analysis necessary to determine improved agricultural activities in the hills.

Although changes are being seen here and there, major regions of the GKV hinterland are largely similar

MAP 5.2



with a predominantly subsistence focus. Though changes are discernible in some areas in response to specific opportunities, these changes are at most sporadic, and location specific. Furthermore, they do not form part of a larger organized strategy for regional agricultural development.

5.3 Demand for Agricultural Products

Demand conditions exercise a significant influence upon specialization and trade in agriculture. Obviously, supply conditions are also important, but without favourable demand, farmers are not easily motivated to produce for the market. In the context of the GKV region, demand for specialized agricultural products comes from a number of sources. First is the urban household sector. With increases in incomes, households with higher incomes consume greater amounts of products such as milk, meat and eggs, vegetables and fruits. The Nepal Rastra Bank Household Survey indicates that consumption of these products has more than doubled over the past ten years. Changes in income levels also show significant differences in expenditure for these products, with the upper income groups spending thrice as much as the lower income groups [NRB 1987].

Another important element of demand for various types of agricultural products has come from tourist demand. With rapid growth in tourism, expenditures in agricultural products are likely to grow quite rapidly. There has been a growing import substitution in these products, but supply is still very erratic, product choices are limited and quality control is lacking. Figure 5.1 shows the extensive import and export linkages of the Greater Kathmandu Valley Region.

Demand is also likely to come from other sources if careful off-season supply planning is organized. Many areas in the southern Nepal and in India are important markets for off-season products. However, off-season supply planning is a very delicate operation and if the time advantages cannot be fully captured, farmers may have to face price collapses and other marketing problems. Another important reason for focussing on specialized agricultural products is price change. Prices for vegetable and fruits, have been rising very rapidly in recent times. This is a good indicator that price conditions are very favourable for inducing positive

supply responses. While data is sketchy, the indication is clearly towards very favourable demand conditions for specialized agricultural products, particularly vegetables, meat and fruits.

5.4 Changes in Fruit and Vegetable Marketing in Urban Kathmandu

During the past ten years, there have been major changes in the organization of fruit and vegetable marketing in urban Kathmandu. The most notable change has been the emergence of Kalimati as the major wholesale fruit and vegetable centre in the valley, superseding other traditional centres of Asson, Ranamukteshwar and Indrachowk.

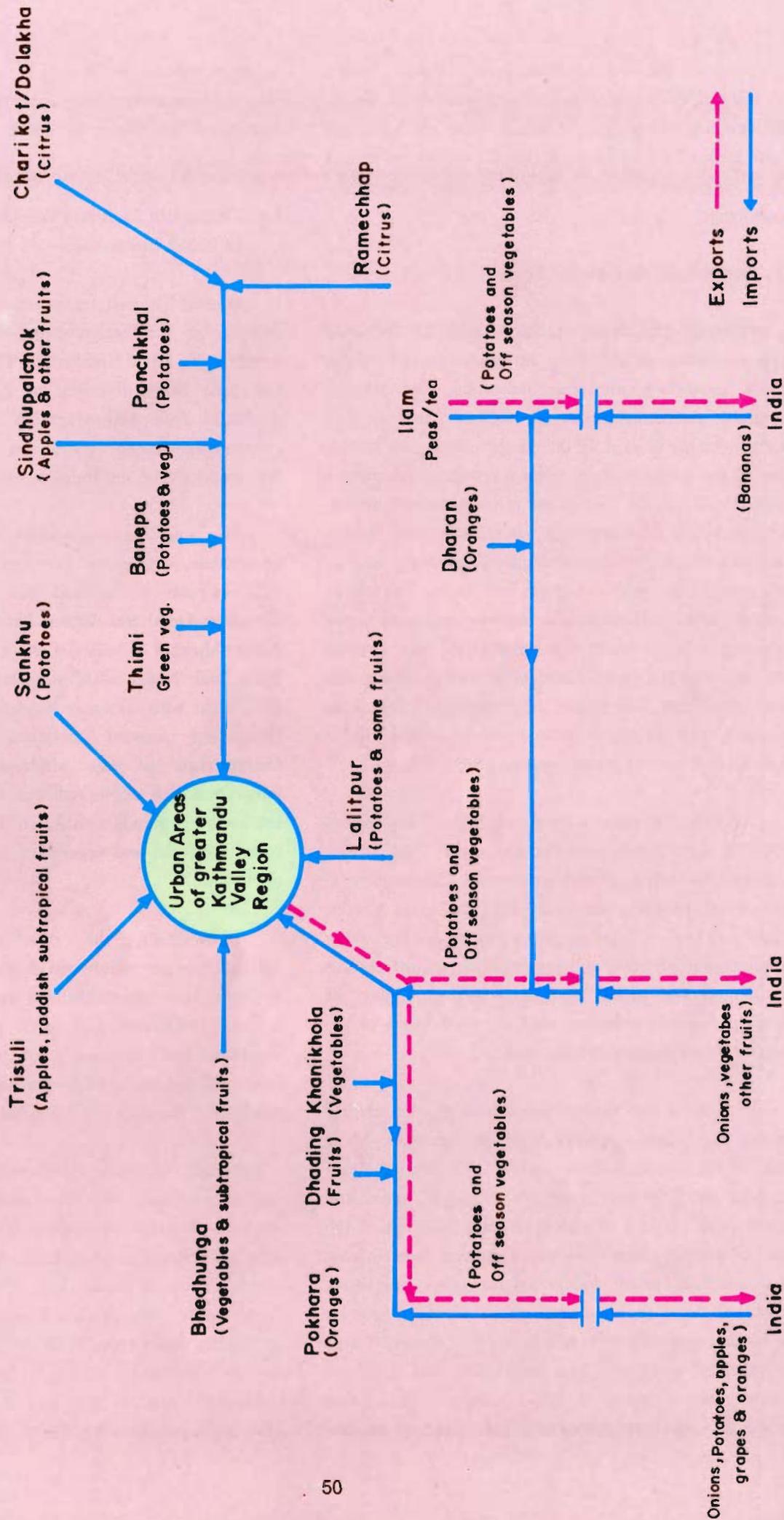
The Kalimati wholesale market has 40-50 wholesalers, with agents operating on commission basis in different parts of Nepal and India. Connections extend as far out as Delhi and Assam. These wholesalers organize direct shipment of seasonal fruits from different parts of India and Nepal with minimum transshipment costs. Discussion with different wholesalers revealed a fairly competitive market situation. Another important characteristic of this wholesale market has been integration with mobile retailers. Every morning, one can see hordes of retailers either on their bicycles or on foot, collecting fruits and vegetables for retail distribution in the valley.

Interestingly, the development of organized marketing began mainly with fruits and is still dominated by fruits. However, it has also attracted other groups to organize wholesale and retail purchase and sale of vegetables like tomatoes, potatoes, cabbages and a few others. There are groups dealing with vegetables from Bhaktapur, Dhading and a number of other areas.

In spite of these developments, there are many serious problems with the ad-hoc manner in which marketing has developed. First, farmers outside the valley face major transport problems. The limited number of vehicles cause a heavy rush. In Dhading, for example farmers have complained of having to load their products by three in the morning so as to reach the market on time in the morning. Another problem related with transportation is the difficulty of access into the valley after six in the morning. There are some restrictions on

EXPORTS AND IMPORTS OF HORTICULTURAL PRODUCTS FROM THE GREATER KATHMANDU VALLEY REGION

Figure 5.1



the entry of heavy vehicles in the morning. There are also problems of unloading because of the lack of suitable places. Lack of proper marketing sheds, absence of control over weights and measures, very poor sorting and grading of produce, lack of skilled labour to handle loading and unloading of delicate fruits and vegetables, are all major problems in the organization and development of fruit and vegetable marketing. It is also important to point out that farmer's preferences in the choice of convenient market points vary largely. For instance, farmers from Nuwakot and Panchkhal find it very inconvenient to have to go to Kalimati or other such locations that require moving through the city with their produce. It is, therefore, important that separate marketing outlets be located to suit the conveniences of farmers from different areas.

Without stronger marketing organizations, the development of the present marketing system will not operate to the advantage of the farmer. So long as farmers are compelled to sell to urban wholesalers, they will always be price-takers and not price-setters. At present, large numbers of farmers still deal with the market on an individual basis which is unlikely to improve their bargaining capacity. Also, it severely limits the level of investments that have to be made for reducing distress sales of farm produce.

Thus while important developments are underway, there is still a long way to go. Many improvements in marketing are critical for major thrusts in agricultural specialization and trading in the Bagmati zone. To date, public investments in marketing development in the GKV region has been minimal and the bulk of investments have come from the private sector. In the future, it is important for the public sector to make marketing investments and carefully coordinate these with specific area-wise plans for agriculture development.

Both from the point of view of the farmers and marketing development, a number of general conclusions can be made.

(a) Demand Conditions

In general, demand conditions are likely to become more favourable for high value agricultural products like fruits, vegetables and livestock

products. Apart from possibilities for import substitution, there is also some scope for export promotion to the Lhasa market, off-season markets in the Terai towns and neighbouring parts of India and, in terms of high quality seed production, even exports to more distant markets.

Capturing these markets will not be an easy job especially on account of high competition and costs. Careful planning and effective organizational support are necessary for integration of different operations from producing to marketing of various crops.

(b) Production Conditions

From the farmer's side, a number of problems are evident. First, knowledge of markets for various products, their prices and necessary marketing arrangements are lacking. Second, farmers face problems of sales and reasonable prices in cases where they are already producing for a market. There is a strong reluctance to commit land to these crops as there are no long term guarantees of purchases. Third, post harvest losses are very high. Farmer level processing to preserve product quality is virtually non-existent. Some simple processing steps could enhance product quality and shelf life of products.

(c) Marketing Organization and Support Services

This is clearly the weakest link and the most difficult constraint in the process of agricultural specialization in the Bagmati Zone. At present, quality control and central marketing facilities are very poor. There is a complete lack of specialized Marketing Boards or Commodity Trading Houses or even effective marketing cooperatives. Among line agencies, there is lack of clarity as to who should be doing what. It is fairly clear from the experience of many countries that without demonstration of effective institutional coordination and support, farmers will be reluctant to change. This critical issue of organizational support in the context of agricultural development in the Bagmati Zone is discussed below.

5.5 Organization and Implementation of Agricultural Development Programmes

During the past three decades, important changes

have been noticed in the agricultural sector of the Bagmati Zone. The use of HYV seeds in cereal grains, increase in double cropping, and stronger movement towards greater market orientation of farmers are some of the more significant developments. To some extent, these are the impact of programmes started by various public sector agencies. Much of it, however has been the result of innovative hill farmers who are constantly struggling to overcome the constraints of relatively small land holdings. Programmes to develop irrigation, horticulture, livestock improvement and to some extent, marketing support, have been in operation for some time. And yet, the potentials are far greater than the actual progress made because of lopsided priorities, unsustainable efforts and unresponsive institutions. The experience of Nuwakot district under the World Bank-funded Rural Development Programme is particularly instructive as it illustrates the prevailing conditions in other districts of the Bagmati zone [DRCG 1982]. The agricultural sector occupied a major role in the project and a large number of activities were initiated under the agricultural development programme which included:

- (i) Propagation of improved seed and fertilizer technology for cereal grains, root crops, fruits and vegetables through seed distribution, fertilizer, credit supply and extension programmes
- (ii) Training of extension personnel and farmers
- (iii) Development of markets and
- (iv) Improved irrigation

The combined effect of all these measures was to increase the output of edible crops (primarily paddy, maize and wheat) and vegetables by about 17,500 tons by the seventh year of the project (1982/83). More significantly, it was anticipated that participating households would be able to meet fully their annual food requirements in contrast to a pre-project assessment of only a six-month food supply.

If we review the programmes, a number of points emerge. First, accessible areas have been better served than inaccessible areas and here accessibility refers to roads. Second, lowlands, or those areas under paddy and wheat cultivation have benefited more than areas raising

other crops. In Nuwakot, there is a fair abundance of lowlying *tar* areas along the Trisuli, Tadi, and Likhu river valleys. While the project identified all the 29,000 households as target population, the availability of improved seed-fertilizer technology for only a few crops has effectively reduced the participating households under the agricultural development programme. Some effort have been made to supply improved maize and potato seeds, but these have not been encouraging. With regard to institutional involvement it was found that all the major agricultural development institutions received substantial project funds, making possible some extension work at the sub-district level. The institutions involved included those engaged in extension, e.g. Agricultural Inputs Supply (AIS), Agricultural Development Bank of Nepal (ADB/N), and Agricultural Marketing (AM). Projects supported the establishment of subcentres of the District Agricultural Office (DAO). It provided funds for the credit programme of ADB, (up to 63 per cent of the total investments) and supported godown construction for AIC. It provided complete support for the establishment of the agricultural marketing office and the Regional Training Centre. It is therefore, apparent that at the district and sub-district level there was a major boost by the project, for strengthening institutions involved in agricultural activities. The support for physical facilities like offices, buildings for staff quarters, godowns and salaries of personnel has enhanced the quantity of both physical infrastructure and technical manpower in the districts.

In so far as agricultural development programmes and projects are concerned, a District Agricultural Development Plan was prepared by the Department at the centre, based on earlier recommendations of the Trisuli Watershed Project. The District Agricultural Development Plan was, however, only an indicative plan. It contained none of the details required for an operational plan beyond identification of crops raised by farmers and some rough estimates of yields. Crop relations, combinations, input usage by crops and credit requirements, availability of water, etc., which were all important inputs for an operational programme were lacking. Even locational aspects of the programme did not find any review, except for the names of panchayats. The plan primarily served to establish the agricultural organization in the districts. The bulk of the actual

programmes have been developed on an annual ad hoc basis - more often to satisfy the Planning Commission and the Department, than for the requirement of farmers.

The implementation of agricultural development programmes has not been uniform over the years. A distinction may be drawn here between activities relating to the establishment of the institution and those concerned with provision of services to the farmers. Construction of subcentres, regional training centres, godowns and office buildings have made a major claim of project funds and time.

The first year of the project primarily focussed on office establishment and on getting ahead with construction work. Midway during the project the referendum and the national election took place. These were political events that, undoubtedly had some impact upon the implementation of programmes. In effect, the service delivery component of the project had an effective operation period of only about two years in a five-year programme.

Major Sectoral activities of the project are described below:

(a) Institutions and Services

Extension, inputs and credit have been the major thrust of the project for agricultural changes in the project area. While these components, along with marketing and support for irrigation development, are critical factors for the development of agriculture, it is immediately apparent that it is the farmer who must make efforts to take advantage of these institutions. Questions regarding farmers organizations have not even been raised at anytime during the past five years.

Below the district level, most agencies have evolved some form of lower unit to support their delivery system as a necessity for working in the hills, and emphasizes the need for careful spatial planning. These sub-units are not located in the same area and no mechanism exists at present to integrate them spatially.

Thus while there are many institutions to cater to the needs of the farmer, this is easier said than done [Fig 5.2]. In most instances, it is the farmer who has to move from agency to agency and patiently wait for the

institution to attend to his needs.

(b) Extension

Extension work in the district has received substantial support from the project and major effort has been to propagate the use of improved seeds such as paddy, wheat, maize and potato including some vegetables and fruits. At present, this work which is mainly in the form of information transmission has little capacity to get existing problems solved. Work time regulations (10 am-5 pm), budgetary limitations, lack of training and equipment, etc., are some familiar reasons given for low capacity to solve problems. With increases in the use of improved seeds and fertilizers, problems of various kinds are bound to increase and there is every need to upgrade the level of services provided. Specifically, there has to be an enhancement in capacity of the extension system to solve the problems faced by farmers. Crop diseases in potato for example is not being adequately attended to. Research farms located in the project area are not of much help in the cereal extension programme of the project. Focusing on horticulture is effective if there is a concurrent programme to address problems of farmers. Farmers will not, at the moment, choose horticulture in preference for cereals and this is a priority that has not been reflected in the research system under the project. A weak research system unmistakably lowers the quality of both training and extension quite apparent in the project.

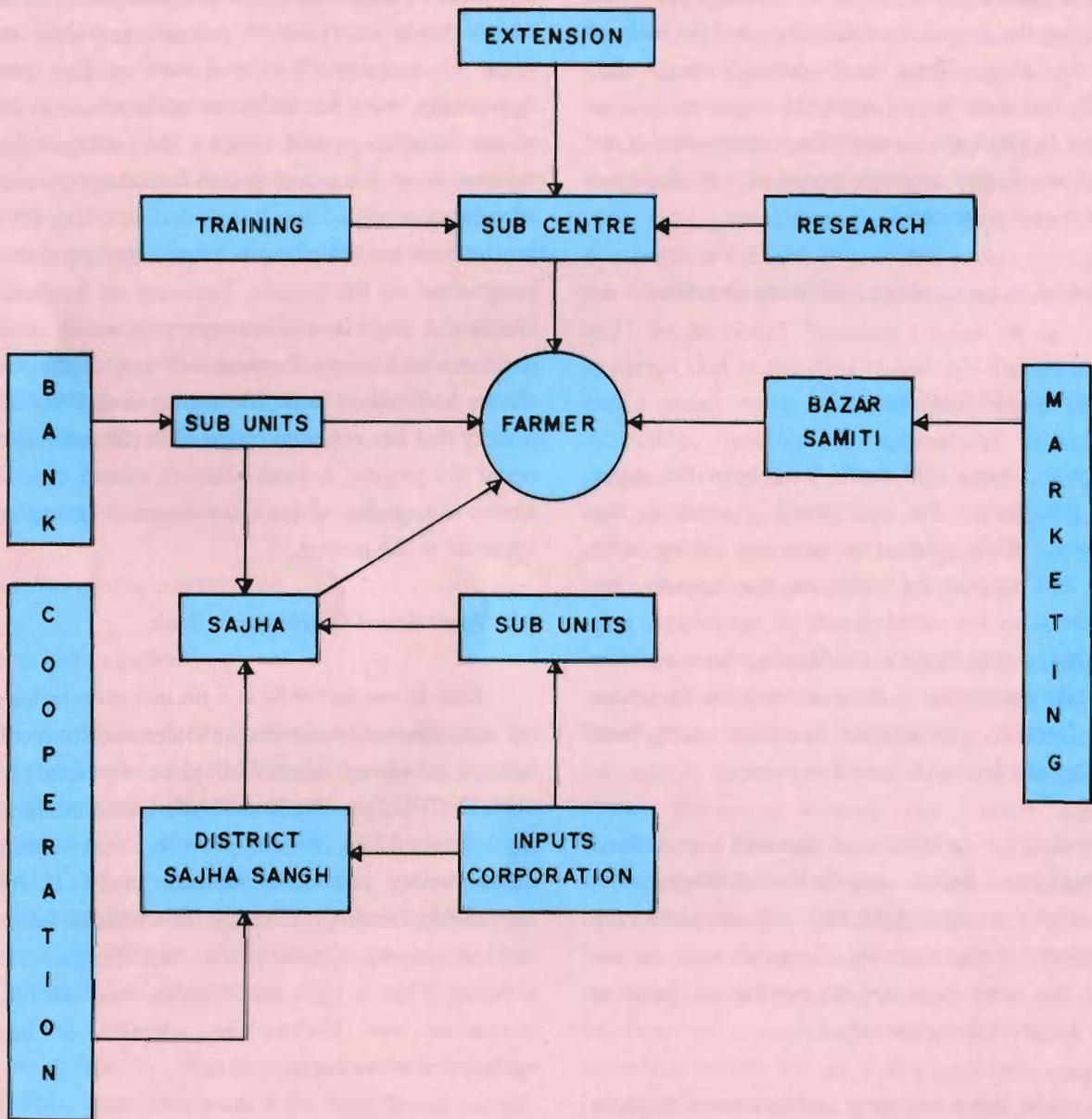
(c) Agricultural Development Bank

Easy access to credit is a *sin qua non* for improving hill agriculture. Consequently, the demand for credit from farmers is almost insatiable, given the limited funds available. The "poor" collateral offered for credit and the high demand for credit provides ADB/N with very discriminatory powers to allocate credit. If credit is unavailable, farmers cannot use the extension information and AIC inputs. Credit is also the life line of Sajha societies. Thus a tight credit policy weakens the other institutions and hinders the adoption of improved agricultural technology.

Over five years, ADB/N's credit policy has moved from expansion to contraction with a slight expansion in the fifth year. This is somewhat surprising as the

Figure 5.2

DISTRICT LEVEL INSTITUTIONS AND SERVICES IN AGRICULTURE



repayment rates have been increasing. As a tight credit policy hurts the entire agricultural development process, efforts should focus on recovery rather than curtailing loan supply. Recovery is, undoubtedly, more difficult as it may require house to house visits. It is, therefore, in ADB/N's interest to strengthen the Sajhas or develop more effective farmer's organizations.

(d) Agricultural Inputs Corporation :

While farmers have traditional moneylenders as alternative sources for credit, there are no alternatives to AIC. It is a monopoly supplier, that discriminates with respect to quantity rather than prices. As there are major restrictions on supply and allocative flexibility is limited - the problem is accentuated by inaccessibility.

At present, supply is based solely on AIC's own estimates about expected demand (based on past sales). Sales have been increasing although not very evenly. AIC supplied about 300 tons more in the second year of the project and again another 300 tons more in 1979/80. There is limited flexibility to adjust to increasing requirements. AIC is not prepared to be left with huge fertilizer stocks and is therefore operating on the lower supply side.

(e) Agricultural Marketing

The Marketing Office is trying to help farmers, but it has not been very successful. Traditional channels seem to be more effective at the moment in so far as the farmers are concerned. Some efforts have been made to find markets for farm produce but this is clearly not feasible on a larger scale. Marketing cereals is well established but newer products like vegetables and horticultural products face many problems. Presently, the sources of agricultural products surplus for the market in Nuwakot are as follows:

(i) surplus from larger farms - mainly cereal crops with some lowland farms that grow some fruits

(ii) use of marginal land for cash crops or animal husbandry. Two examples are livestock raising in upper altitudes and use of millet for brewing and

(iii) sale of forest products - which are almost

non-existent although some sale of wild animals like wild boar in the Trishuli market does exist

Thus there is a limited amount of marketed products and much of it consists of cereals, livestock products and some vegetables. Marketing of cereals and livestock products have not created much problems because the volume is low. Under this condition, the local marketing office does not have a very useful role.

(f) Sajha Institutions

The closest form of farmer organizations are the Sajhas or cooperative societies. Sajhas are completely at the mercy of ADB/N and AIC and a few other corporations. The District Cooperative Office is of little help if ADB/N does not grant it credit. The major lesson from the successful Sajhas is one of motivated staff. Profits can be made in existing activities, but the people working in these institutions see no future, no security and no commensurate reward for working towards a successful Sajha. It has become a totally unproductive bureaucracy, extensively exploited by rich farmer-politicians of the district. In contrast, the Small Farmer Development Project Cooperatives function relatively more effectively, although they have been virtually spoon-fed by the ADB/N.

Thus there are many positive signs in Nuwakot district -- (at least in the accessible parts). Agricultural development is beginning to change, -- these changes are however severely constrained by weak supporting institutions and services that have failed to operate on the basis of comparative area advantages. Efforts to support the subsistence production activities of hill farmers in upper elevations have not met with much success. The focus has been on lowlying areas where farmers are already active and have access to resources. This story is not very different from other parts of the Bagmati Zone.

5.6 Market Centres and Spatial Linkages

Settlements inevitably undergo a process of change all the time in terms of population movement. People are constantly in search of newer opportunities and although not everyone wanting to move can, a surprising number do. These movements, long-term or short-term, seasonal or daily, reflect different types of relationships between

different settlement levels. Spatial linkages incorporate not just movement of people but also those of goods, and generally include demographic, economic, social and political linkages. The basic objective in looking at these aspects is to understand the nature of rural-urban links and examine their overall implications for organizing potential development areas and activities. Here a small case of Nuwakot district is discussed.

Migration

To start with it might be useful to provide a brief background of migration patterns in Nepal. Nepal's migration process has been significantly influenced by the geography of the country with its three distinct geographical belts running east to west - the mountains, middle hills and the southern Terai. It is the hill and mountain regions that have been major exporters of population to the southern Terai plains and a number of other areas. If on the one hand, the Terai's increasing attractiveness for settlement exercised a powerful "pull" effect, the deteriorating hill economy and environment have increased "push" effects, resulting in population exodus from the hills. Over two decades of reckless deforestation and settlement promotion in the southern Terai has practically exhausted agricultural land for new settlement and the Terai no longer seems capable of productively absorbing any more of the hill population without substantial changes in technology and

agrarian systems. Developmental attention is being redirected to the hills through a series of rural development programmes in order to improve the incomes of hill people. Migration in Nepal, therefore, has been mainly rural to rural. Rural to urban movements are also increasing but have been limited because of the low levels of urbanization. Rural to urban migration is likely to increase substantially in the future as urbanization spreads more rapidly.

Nuwakot district (Map 5.3) has had a relatively better share of development projects which have generated a good deal of local employment, possibly reducing out migration to some extent. Two major projects - the Devighat Hydro Electric Scheme (which has been completed) and the Betrawati-Somdang Road (in Rasuwa district) generated as many as 15,000 jobs every day during 1981-83 period. An important integrated rural development programme has also been implemented in the area.

Level and Duration of Migration

A special field survey indicated that 815 persons had migrated during the past year which represents about 5.22 percent of the surveyed population (Table 5.1). An earlier study pointed out that migration was 2.25 percent for the district as a whole. In so far as the number of migrants by short term (six months to one year) and long term (more than one year) movements are concerned, long term movements are almost double (68 per cent) those of short term movements (32 per cent).

Income characteristics of Migrants

Migration characteristics by income groups show some interesting differences. Migration is lowest for middle income groups, followed by lower quarter and upper quarter (Table 5.2). In terms of the duration of stay measured in man months, it is lowest for the lower quarter and highest for the upper quarter.

Destination of Migrants

It has been pointed out that migration in Nepal is mainly rural to rural. In other countries where

TABLE 5.1 :DIFFERENT TYPES OF MIGRANTS IN NUWAKOT

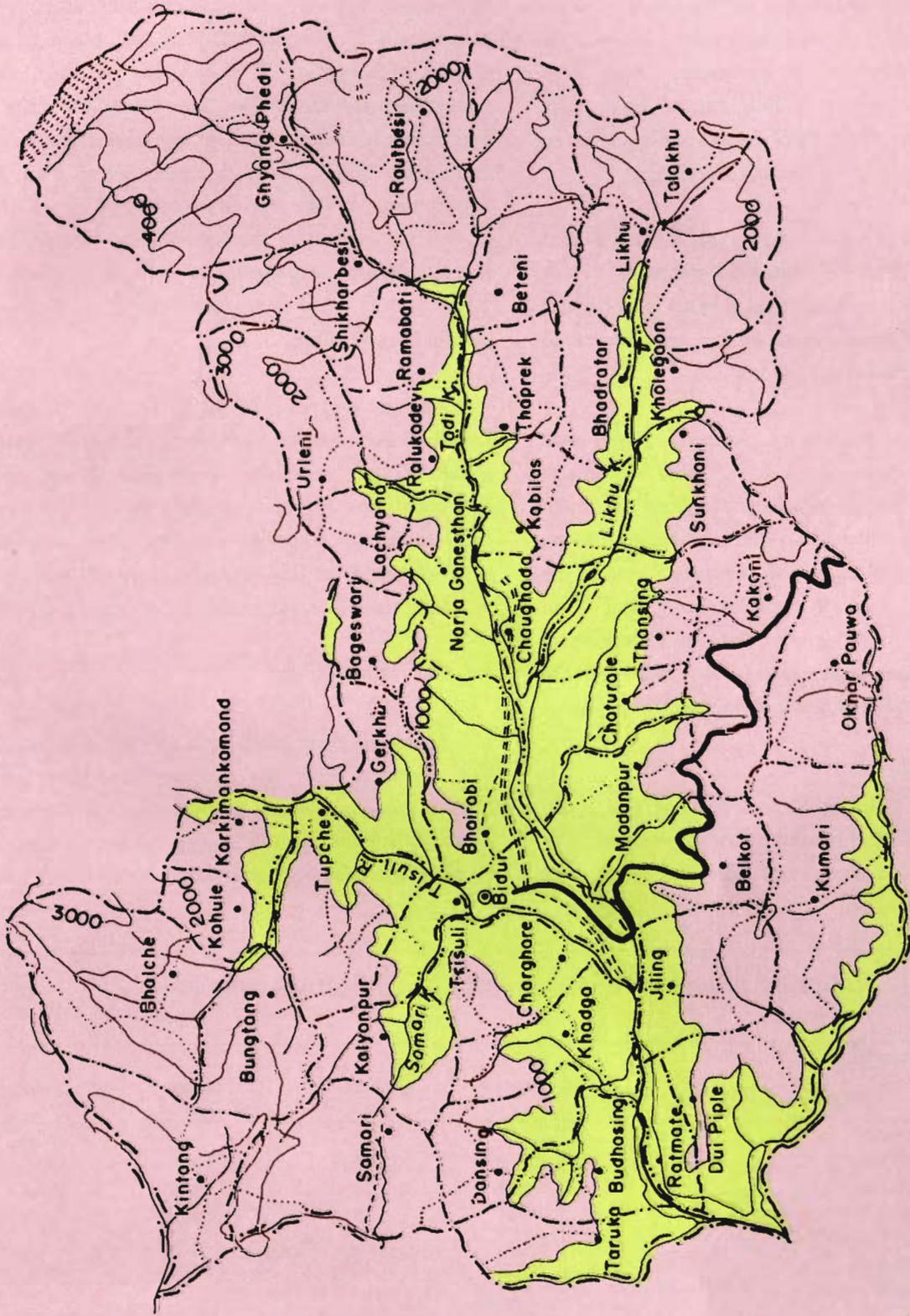
Surveyed Settlement Population - 15,616 : Household = 2,544

	Within District	Outside District	Foreign	Total
More than one year	59	360	133	552
Six months - One year	73	158	32	263

Source : Field Survey (by the author)

NUWAKOT DISTRICT: PHYSICAL

Map 5.3



LEGEND

- District Boundary
- Village Panchayat Boundary
- Metalled Road
- Unmetalled Road
- Trail
- Footpath
- River
- Village Panchayat
- Contour Line
- Steep Slope

urbanization has reached relatively higher levels, the movement may be more rural to urban. Table 5.3 shows the different migration flow characteristics by destinations and by duration for the surveyed settlements. The Table indicates that a large proportion of the migrants from Nuwakot make a rural to rural movement, followed by rural to urban and foreign movements (Map 5.4). Broadly, what this means is that out of every four migrants, two go to other rural areas, one goes to an urban area and another goes to India (foreign).

Rural to Rural : Out of 454 migrants making a rural to rural movement from the surveyed settlements, 67 per cent was long term (i.e. more than a year) and only 33 per cent was short term. About 84 per cent moved to destinations outside the district (Map 5.5).

Rural to Urban : There were 196 migrants who were reported to have made a rural to urban movement. Urban areas are those officially declared as town panchayats. As Nuwakot had no officially declared town, Trishuli Bidur was defined as the only urban area in the district. As in the case of rural to rural, long term migrants accounted for 59 percent. In terms of inside and outside district movements, the former was only 34 percent. Outside district movements exceed inside district movements.

Inside District : Out of the total 815 migrants, those moving inside the district made up only 16 per cent. The proportion between rural to rural and rural to urban is

interestingly enough roughly half and half. Although this figure is based only on a limited survey and needs to be verified by more comprehensive data, it is important to note point that fifty per cent of the movements within the district was towards the Trishuli-Bidur urban area. It underscores the importance that this place is already playing in terms of its dominance in trade, finance, marketing, administration and transport links. The implication for future development of this area is equally significant. Today, it is a small centre with limited employment in the tertiary sector. If Trisuli-Bidur's growth is to be kept manageable, the development of non-agricultural employment as well as development of other centres with some basic urban functions merits careful consideration.

Outside District : About 63 per cent of movement from Nuwakot was to destinations outside the district, of which 70 per cent was long term. Rural to rural movement was 75 per cent while only 25 per cent was rural to urban. Although rural to urban migrants are relatively small in this category, it is still double those making a rural to urban movement within the district.

Reasons for Migrating

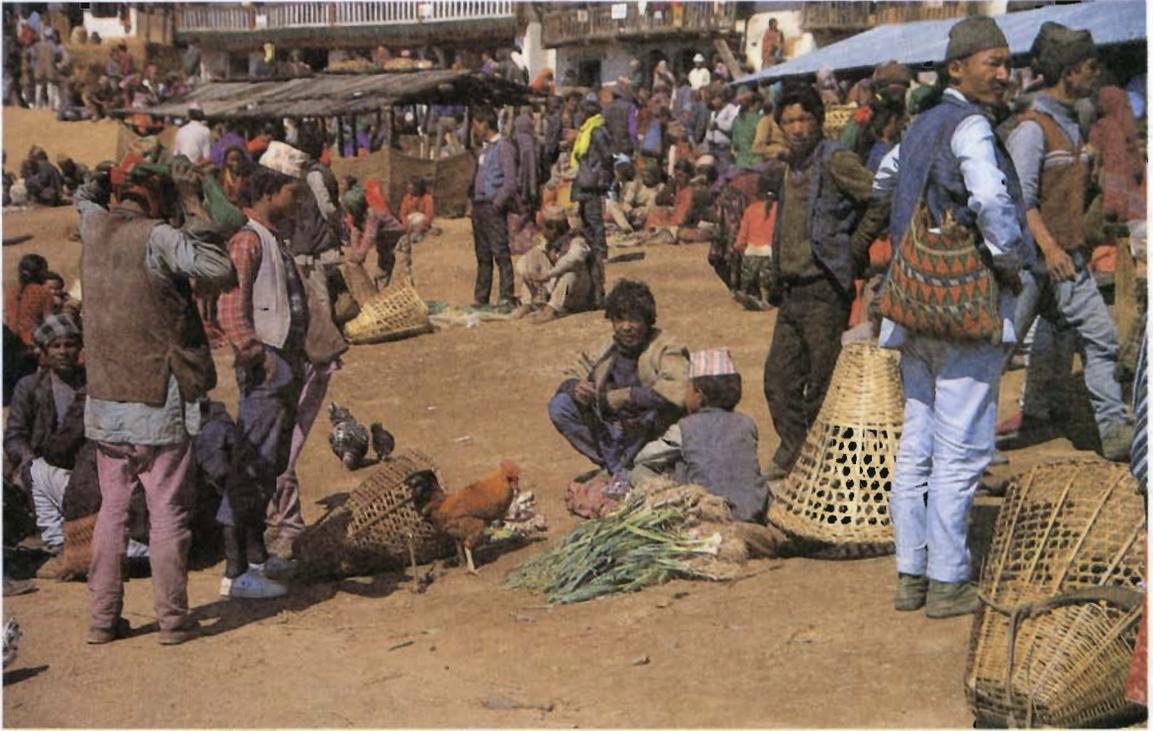
Questions were asked as to why different households had migrated from the settlements. These represent reasons for migration as identified by non-migrant households. Consequently, it is necessary to keep this in mind while examining the various reasons cited.

TABLE 5.2 : MIGRANT CHARACTERISTICS BY INCOME GROUPS

Household Types	Lower	Middle	Upper	All
Number of Migrants				
Short term	0	259	517	776
Long term	1161	1615	968	3744
Total	1161	1874	1485	4520
Duration of Stay (outside) Man/Months				
Short term	0	7500	2328	9826
Long term	6965	20284	46209	73458
Total	6965	27784	48537	83288
Average duration of stay/migrant man/months)	6.00	14.83	32.68	18.48
Average Remittance per migrant (Rs.)	210.11	682.19	1190.61	727.70

Source : DRCG, Op. cit., Table 4.4

10



(Courtesy : Tej Pratap)

10. Marketing by hill farmers in a hill Bazar.

Sometimes the farmer is lucky and gets good prices after a long day of waiting.
Also note how little there is for sale.

11. Trail-side Marketing by Hill Farmers.

11



(Courtesy : Kk. Panday)

TABLE 5.3 : NUMBER OF MIGRANTS BY DESTINATION AND DURATION

	Rural to Rural			Rural to Urban			
	Inside District	Outside District	Total District	Inside District	Outside District	Total District	Foreign Place (not identifiable)
More than one year	49	254	303	10	106	116	133
Six months - one year	17	134	151	56	24	80	-
Total	66	388	454	66	130	196	-
Weekly	22	6	28	2	4	6	
Daily	4	45	49	4	12	16	
Total	26	51	77	6	16	22	-

Source : Field Survey

Six categories of reasons have been identified, and obviously there is some overlap. For instance, income and search of jobs are interrelated in the present context but need not always be so. Resettlement is also related to income and search for jobs but has been identified as a separate category simply because it was not a very common reason (Table 5.4).

More than one year : Under this category, "low income and lack of food" was identified as the most common (50 per cent) reason. This was followed by "search for jobs" which include government and military service. What is interesting is that foreign service (military service in India, mainly) was identified in almost twice as many cases as domestic service. Similarly, reasons such as "search for jobs", "going to India" were more common here than in other parts of Nepal. This reflects to some extent to the overall structure of the Nepalese economy, where secondary and tertiary employment is very limited. Another interesting category was "better facilities" and "own choices". What this indicates is that these groups of migrants were apparently well off even in their original places, and chose to move out for a different type of environment, due presumably to the urban "pull" effect.

One year to six months : There was some change in reasons for short term movements as compared to long term movement. "Low income" and "lack of food" dropped substantially to about 34 per cent while "searching for job" increased (36 per cent). "Business" was not mentioned before, but is identified in this category. The number of service holders in this category increased to twice as many as in the long term category and here services in Nepal rather than in India dominate.

Commuters

Table 5.5 indicates the number of weekly and daily commuters to different areas. This could perhaps be due to field data counts of daily and weekly visits instead of monthly visits. However, daily commuters exceed the weekly ones. As expected, movements within districts are greater than outside because of difficult transport systems.

Referring back to Table 5.3, we find that outside district rural to rural movements are greater than inside district for weekly and daily commuters. This is explained by the presence of a major road construction project in Rasuwa district which attracts large numbers for work. Rural to urban movements reflect a similar case with more people commuting to Kathmandu for work almost on a daily basis, primarily from Panchayats and settlements that are close to Kathmandu. Among the reasons given for weekly and daily movements, "searching for jobs" and "service" (government) are the only two identified.

Summary of the Migration Process

Migration in the study area has been primarily to other areas with potentials for agricultural activities (rural to rural) and to a limited extent, to higher order centres (rural to urban). Based upon a general reading of reasons given for migrating, "push" factors (low income, insufficient food, in search of jobs etc.) seem to be relatively more important at the present than "pull" factors. From this it would appear that the urban drift is not as pervasive from this area as one would have

TABLE 5.4 :REASONS FOR MIGRATING

	More than one year				one year-six months				Total	
	Domestic	Foreign	Total	Percent	Undomestic	Foreign	Total	Percent	Number	Percent
1. Not enough food/ low income	276	-	276	50.0	-	-	-	-	276	33
2. In search of job	39	72	111	20.0	153	26	179	68.0	290	35
3. Resettlement	10	-	10	181.0	-	-	-	-	10	1
4. Business	-	-	-	-	8	-	8	3.04	8	0
5. Services	35	61	96	17.39	53	6	59	22.43	155	19
6. Own choices/ better facilities	59	-	59	10.69	17	-	17	6.46	76	9
Total	419	133	552	100	231	32	263	100	815	100

Source : Field Survey

expected, based upon the experience of other countries. In other words, it may be argued that the migration process is still in an early stage, primarily rural to rural because of limited number of urban places, non-availability of resettlement opportunities, low levels of education and skill development, and a small manufacturing sector. As education and skill levels improve, secondary and tertiary sectors expand and create jobs, city lights will grow brighter and migration will increasingly take a rural to urban shift. Obviously, there is some overlap between the two stages as we have observed quite clearly from the discussion of migration patterns in the study area. With increasing linkages to the city (for education, health, inputs, and jobs) and decreasing opportunities for agricultural resettlement, this second stage of mainly rural to urban movement is likely enhance substantially in the future particularly in the case of the study area.

Marketing Linkages

Map 5.5 shows the various types of economic linkages within and outside the district for the surveyed settlements in Nuwakot district. In so far as marketing is concerned at least eight settlements identified local villages and this, is mainly due to inadequacy of products to take to the bigger markets. The pattern for purchases is almost identical as that for sales except for the fact that there are substantially fewer local purchases reported. The number of reported centres were eight as before but Tupche and Betrawati dropped out and Dhading (another district) and Ranipauwa are identified as local

market for of sales. Kathmandu, identified by fourteen settlements, interestingly enough appears to serve a larger number of settlements because of cost considerations and supply reliability.

Settlements located in the southern and eastern parts of the district are attracted to Kathmandu while those the north and west look towards Trishuli and Battar (in Bidur). Proximity to the market centre is clearly the determining factor between Kathmandu and Trishuli, although by virtue of Kathmandu being the capital and a much larger market centre, it holds other attractions as well.

Service Linkages

Five places identified as points for agricultural loans were Ranipauwa, Kathmandu, Tupche, Trishuli and Choughada. Except for Kathmandu and Trishuli, all others are service centres. About half the residents from surveyed settlements reported that they had no idea

TABLE 5.5 :NUMBER OF WEEKLY AND DAILY COMMUTERS

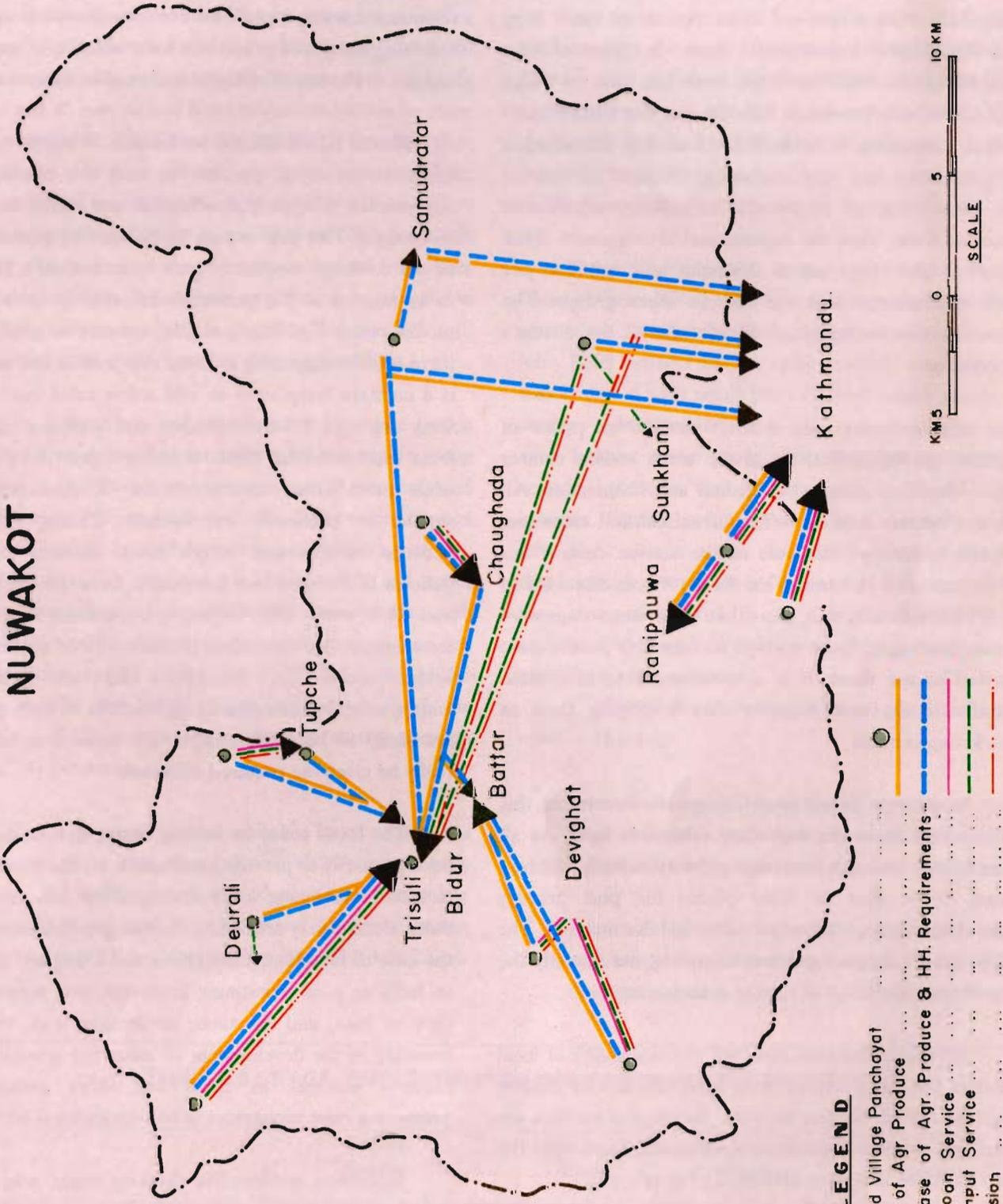
	Within District	Outside District	Total
Weekly	24	16	40
Daily	49	12	61
Total	73	28	101

Source : Field Survey

PATTERN OF ECONOMIC LINKAGES

Map 5.5

NUWAKOT



LEGEND

- Studied Village Panchayat
- Sales of Agr Produce
- Purchase of Agr. Produce & HH. Requirements
- Agr Loan Service
- Agr input Service
- Extension

where to go. It may be pointed out that all the service centres have to process loans through the district Headquarter Office of the Agricultural Development Bank. This does not imply that other areas in the district cannot receive any loans. Thirty-six panchayats were identified to have received some amount of loans from the Agricultural Development Bank. In terms of loan distribution for 1981/82, 50 per cent had gone to Bidur and Choughada panchayat with the rest was shared by 34 others, amounting to about Rs. 6.3 million. Distribution by groups was also very interesting. While 65 per cent of the loans went to cooperative institutions, others that received loans from the Agricultural Development Bank stood at 26.49 per cent to Brahmins and only 2.46 per cent to Tamangs and the rest to other groups. The Tamangs constituted about 50 per cent of the district's population.

Service centres are the key distribution points of agricultural inputs and six of the seven service centres were identified along with Trishuli and Kathmandu. All service centres have an office of agricultural extension, except Bhadratar. The role of the service centres has been important in terms of the three services discussed so far. This indicates that there has been some degree of strengthening of these service centres and people have started to use them. It is now necessary to take these centres to the next stage by also developing them as marketing centres.

In so far as educational linkages are concerned, this begins only from the secondary education level. As all Panchayats have at least one primary school, children need to be sent to other places for post primary schooling. Three settlements identified Kathmandu. The other places for post primary schooling were mostly the panchayats identified as service centres.

All the settlements reported the availability of local healers but not doctors. Once again the service centres were identified for health posts. As hospital services are available either in Trishuli or Kathmandu, these were the two locations that were identified by the people.

Service penetration into the rural areas is weak and variant by sectors. Education has made some progress through distribution of primary schools, but even here there is much to be desired as seen from the low levels of

literacy. Some progress is also evident in terms of drinking water availability. At the service centre level, health and agriculture related institutions have begun to function but are still fairly new. The overall picture that emerges is a low service and institutional base with disproportionately high levels of concentration in selected low lying areas and practically total absence of any such support in the upper altitudes and smaller settlements.

Future efforts should be towards bringing as many villages together as possible so that the existing void between the villages, Bidur-Trishuli and Kathmandu can be bridged. This gap cannot be bridged by planning for all the seven sub-centres to grow spontaneously. This will never happen as the potentials inherent in each of the service centre hinterlands are enormously variant. Today, there is little happening in these sub-centres and so there is a constant temptation to add a few more institutions. Only time can tell the blunders and wastages resulting from such decisions. What is being argued here is that while more urban centres should be developed, this should be cautiously approached. Closing this gap between villages and major urban centres requires policies that strengthen integrative focus between rural and urban areas. Such forces, in the context of Nuwakot for example, are those that promote newer markets, and better access to seasonal and non-agricultural employment. As investment implications of such policies are likely to be substantial, a few centres at best can really be given the required attention.

The focus today on service centre development has been primarily to provide government services, and not in terms of mobilizing local resources for investments in these areas. Every area has potential growth centres as in the case of Nuwakot, Choughada and Devighat. In order to mobilise local investment resources, it is necessary to turn to land, and for those controlling land, to begin investing in the development of industrial activities. This requires changes in fiscal and other policies for promoting rural investment in non-agricultural activities.

Regarding services like drinking water, schools and health posts, certain criteria should be worked out in terms of the served population and the desirable travel time to these services. Based upon these norms and expected population distribution, these facilities should be provided to the people as early as possible.

Employment

Gainful employment is becoming a serious problem in the study area and in Nepal as a whole. The Rasuwa-Nuwakot Appraisal Report pointed out in 1975 that people had to migrate seasonally in search of jobs for about six months of the year. Agriculture is the major source of employment at the moment, using an average of 201 man days of family labour and 46 man days of hired labour per hectare for three main crops in the hills [Zevvering 1980]. It is therefore clear that labour utilization will vary not only in terms of the amount of land owned but also by types of crops raised. Very few farmers can take double crops, let alone triple crops. Hill people with lands must therefore obtain income from other economic activities besides self-employment in agriculture. For those without any land, the need to find alternatives to agricultural employment becomes even more pressing.

The share in total wage employment by income groups (Table 5.6) was found to be highest for the middle group (60 per cent) followed by lower quarter (26 per cent) and upper quarter (13 per cent). In terms of the number of wage employment days for each income group, an average of 18.1, 20 and 9 days was obtained for lower, middle and upper groups, respectively. If we relate the wage earnings with number of working days, average earning per working day for the three income groups are Rs. 13.2, 7.2 and 4.6 for upper, middle and lower groups, respectively. Both the lower and middle groups earn less than the average earnings of Rs. 7.43 per working day.

What is interesting is that while the lower quarter has 26 per cent of the man days, but only 18.36 percent of the earnings; the middle group with 60 per cent of man days has only 58.65 per cent of earnings and the upper income group has only 13 per cent of the man days but 22 per cent of the earnings.

The field survey indicated that the total number of job seekers was close to 25 per cent of the total population or roughly about half of the total labour force in the sample (Table 5.7). Amongst the job seekers, 58 per cent reported a six month food supply only. Of the total job seekers, only 46 per cent were successful in finding jobs which were predominantly porterage (93 per cent), followed by skilled jobs (5.57 per cent) and others. The share of male and female labour accounted for 79 per cent and 21 per cent respectively. Wage employment decreased with increasing income groups to 30 per cent in the case of lower quarter, 18 per cent in the case of the middle group and only 12 per cent for the upper quarter.

The need for greater remunerative employment is fairly obvious. With only 200 calendar days annually in agriculture, another hundred days are available for other jobs. Most farmers do not raise multiple crops and the majority hold only small plots of land, which means the average number of days of work on the farm goes down even further. Some groups like the Tamangs work in cottage industries and porterage to supplement their incomes. Others have to move around seasonally to find jobs. Even after a major rural development project, the employment picture has not improved. Had it not been for construction work in the Devighat Hydel Project and the Somdang-Betrawati road, the problems would have been more serious.

Employment thrusts in future need to be in a number of areas :

- intensification of agricultural operations using improved seeds and multiple cropping based on comparative advantages and eco-zone specialization
- infrastructure development, particularly roads and irrigation schemes to support agricultural development

TABLE 5.6 : WAGE EMPLOYMENT BY PER CAPITA INCOME GROUP

	Lower Quarter	Middle Group	Upper Quarter	All Groups
Person days of Male Labour	620,588	1,649,410	382,043	2,660,041
Person days of Female Labour	267,605	375,327	50,015	693,947
Total Person days of Labour	986,193	2,025,737	432,058	3,353,988
Total wage Earning	4,576,709	14,620,611	5,727,617	24,924,937

Source : DRCG, op. cit

- development of agricultural processing activities and
- support to light consumer goods industries, taking advantage of the increasing demand, both in the urban areas and agricultural households.

Subsistence Labour

An understanding of the role of subsistence labour is particularly critical in the context of employment generation in the hills. The process of socio-economic transformation is invariably accompanied by the development of a more skilled and productive labour force. When members of the household are fully occupied in subsistence activities, there is little chance for skill and productivity improvements. Children are deprived of school because of household and farm activities. Women have very little time to learn various skills and educate themselves. The extent to which a nation's population is engaged in subsistence activities is a good indicator of the country's level of development. The argument is not to belittle the value and contribution of subsistence labour but to emphasize the fact that unless people can be freed from this traditional 'bondage', they will never be able to take advantage of the opportunities to improve their skills and productivity.

The implications of the extent of time involved by people in various subsistence activities provide a good basis for location of basic services like drinking water as well as other development activities.

Labour inputs for different household needs and activities are substantial (Table 5.8). Important activities

are firewood collection, fetching water, gathering fodder, grazing animals and transhuming.

Data reveals that women in all three income groups consistently spend more time than men in fetching water and gathering fodder. Firewood collection and animal grazing appear to be male activities with little inter-group differences.

The impact of increasing environmental deterioration (through loss of forests and drying of springs, etc.) has been to increase travel time for subsistence activities. From Table 5.8, it is evident that in terms of time spent, one adult is almost fully occupied in just subsistence activities. Provision of services such as drinking water will certainly help, but can adequate services be provided to this spatially scattered population without some better redistribution of settlements? This is a very important question.

5.7 Spatial Development Opportunities: Lessons From Nuwakot

What are the major characteristics of spatial development in the district and what are the implications for future development, particularly for income and employment generation? Based upon what has been described, certain spatial characteristics begin to emerge.

- The prime thrust of spatial development has been along the three river valleys of Trishuli, Likhu and Tadi. It is here that most of the markets and service centres are located. This is also relatively more prosperous and more accessible area in the district. Development programmes focussed on this area, leaving out other areas to the north-east, east, south and the north-west.
- Some new roads are being proposed for the district. One is to the south-east originating from Kathmandu into the district and moving down the Likhu river valley. The other as planned will pass through Devighat and extend south ward to join the Betrawati- Somdang Road. Given the present nature of spatial development, it is evident that both these roads will reinforce existing spatial development patterns and not really help in the development of

**TABLE 5.7 : JOB SEEKERS IN SURVEY
SAMPLE AREAS**

	Number	
Job Seekers (with only six months food supply)	- 2,257	(57.56)
Others	- 1,664	(42.44)
Total	- 3,921	
successful in finding jobs-	- 1,812	
Skilled (%)	- 101	(5.57)
Porters (%)	- 1,686	(93)
Other (%)	- 25	(1.27)

Source : Field Survey

TABLE 5.8 : SUBSISTENCE LABOUR USED (IN DAYS) FOR HOUSEHOLD ACTIVITIES IN NUWAKOT

	Sex	Lower	Middle	Upper	All Groups
1. Firewood Collection	M	43	99	53	73
	F	47	50	40	41
2. Fetching Water	M	19	22	15	19
	F	62	65	82	68
3. Gathering Fodder	M	74	66	41	64
	F	100	156	196	152
4. Grazing Animals	M	95	65	62	73
	F	72	64	20	54
5. Transhuming		10	9	0	7
Total		122	196	508	557

Source : DRCG, op. cit., Table 3.8, p. 37.

economically backward areas or yet underdeveloped pockets in the district. It may provide certain employment benefits which is important, but is unlikely to boost economic activities in the areas lagging behind.

- (c) Service centres though small have been successful, in motivating people to use some of the services that have been established. Instead of going to Trishuli or Kathmandu, the people of Nuwakot have now some alternatives in terms of agricultural services that are closer to their homes and fields. There is a lot to be desired in terms of the quality of services, but this marks an important beginning for a system of decentralized services. In turn, this is often the beginning of a more balanced spatial development.
- (d) Because the current levels of investment and development programmes in the Tupche-Devighat-Choughada triangle are still fairly small, there is no question about redirecting development efforts from this triangle to other areas. As a matter of fact, the development pace of this triangle will determine the growth of the hinterland, rather than any indirect investments in the latter. This point must be underscored because distribution of limited investment resources will dilute the effectiveness of any programme. Attention should be to promote development of this triangle both agriculturally and industry-wise (see Map 5.6). This process will be greatly facilitated by developing Devighat and Choughada as other market centres in the district.

The proximity of Tupche to Trishuli does not justify its development as an independent marketing centre. Deurali is situated in the middle of a very poor region, and except for institutionalized services and to a lesser extent subsidized marketing of basic goods, its scope for growth is necessarily reliant on the potentials inherent in hinterlands. These potentials certainly do not lie in subsistence agriculture. Though livestock may offer equal potential, this is not visible from currently sponsored livestock programmes. Samundrar as a service centre could develop as a satellite marketing centre of Choughada. Ranipauwa is a small market and a service centre at present. Its current advantage lies in its location as an access point to the Likhu Valley areas. It is doubtful, however, if it will grow beyond its present size and functions. In so far as Bhadratar is concerned, it has better chances than Deurali for developing but at present it is not important.

- (e) The concept of service centres is indeed a useful one. It serves to improve access to certain types of services and also tends to provide some impetus for the growth of marketing functions. The latter, however depends upon the economic potential of the hinterland and this is limited. Some like Choughada and Devighat can grow very rapidly with the right type of stimulus, while others will show only limited change.
- (f) The Tupche-Devighat-Choughada triangle is likely to experience substantial immigration in the future.

This process which has already started, will facilitate growth of urban centres and urban functions. However, programmes to promote non-agricultural activities should begin in a major way to productively absorb people moving into this area.

- (g) The problems of outlying areas are more complex. One way of helping these areas is to develop the triangle and provide opportunities for more jobs. The other would be to find more high value crops that are environmentally sound. But fundamentally, the competition for limited resources between people and an unproductive reservoir of animals must be stopped. Otherwise, environmental deterioration resulting from efforts to eke out a living in these fragile ecosystem might lead to a major catastrophe in the future.

- (e) The overall implication for development is that current spatial development forces are likely to concentrate along the accessible river valley belts. As this is primarily an agricultural belt, the extent to which other off-farm activities can develop will be determined by the pace of sustained improvements in agricultural productivity. This means that off-farm activities will have to be generated in those areas supporting the development of market oriented agriculture. The spatial structure and endowments at present have reinforced this position. The alternatives, not all of which have been fully explored at present, are unlikely to counter the strong *low land determinism* and for a long time to come, poorer people in upper altitudes will have to come down or go to other prosperous areas for jobs so long as comparative advantage of uplands and low lands are not fully exploited.

TABLE 7.1 : JOB SECTORS

The table shows the distribution of jobs in different sectors of the economy. It is divided into three main categories: (a) Agriculture, (b) Industry and construction, and (c) Services. The data is presented in a table format with columns for the sector and rows for different sub-sectors.

Sector	Sub-sector	Jobs (Estimated)
Agriculture	Food crops	150,000
	Non-food crops	50,000
	Other	10,000
Industry and construction	Manufacturing	80,000
	Construction	20,000
Services	Government	30,000
	Private	70,000
	Other	10,000

Map 5.6 MARKET CENTRES AND ACCESSIBILITY AND INCOME ZONING

