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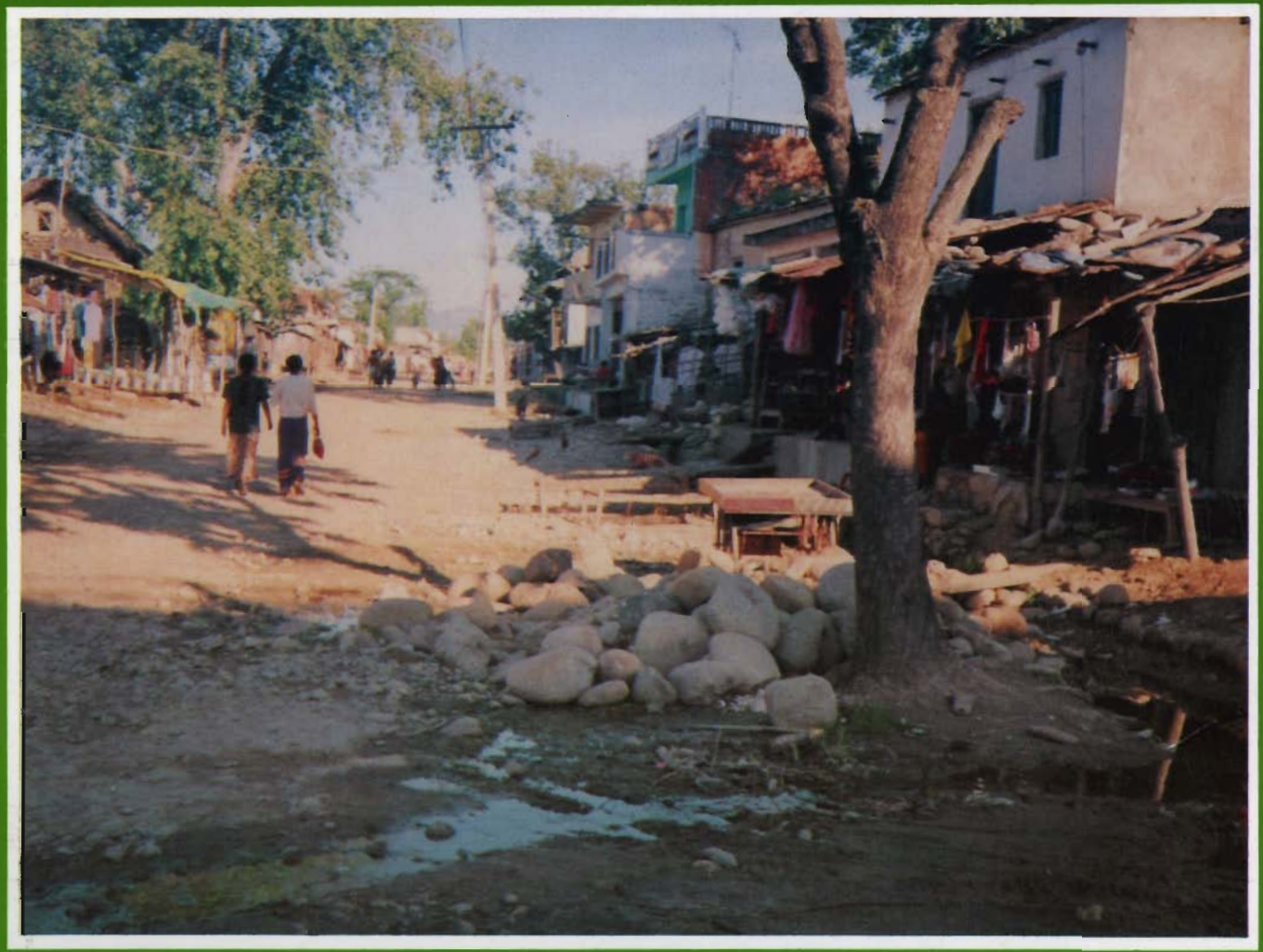
International Centre for Integrated Mountain Development

Assessing the Potentials of Market Towns in the Mountains

Case Studies from the Hindu Kush-Himalayas



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Narendra Khanal

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Narendra Khanal

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Foreword

Increasing populations, accelerating depletion of natural resources, widespread poverty, lack of essential and basic services, and the lack of alternative income generation and livelihood opportunities are some of the features that characterise the Hindu Kush-Himalayan (HKH) region today. The challenge of integrated mountain development is basically one of trying to address these issues simultaneously by focussing on the various dimensions of these linkages: spatio-economic, social, environmental, and institutional. Small towns and market centres are often manifestations of these linkages. The difficulties imposed by rugged terrain and inaccessibility constrain the expansion of production bases in much of the HKH to such an extent that the region is likely to remain overwhelmingly rural for a long time to come. It is in such contexts that small towns and market centres can play a multiplicity of roles.

Market centres can perform a variety of functions: as locations for the provision of central services; as centres for agro-processing and small manufacturing activities; as locations for the concentration of productive investments that can have the maximum spatio-economic impact; as points for arresting rural migration to large urban centres; as centres for human resources' development; and as the facilitators of urban-rural linkages and agricultural diversification. However, not all market towns can play these roles, and all across the HKH there is a need to identify potential market towns which can be made the focus of policy and programme attention. Market towns can also be a major tool for implementing the decentralisation policies that are increasingly advocated throughout the region.

ICIMOD's programme on market towns is an effort at drawing attention to this extremely important aspect of integrated mountain development. In the last few years, ICIMOD has been emphasising programmes and projects that do not end up only as studies but also provide the basis for action. The programme on market towns is an example in which a number of priority projects has been identified for the attention of concerned agencies and institutions. We are glad that attempts in this direction are already underway in some of the countries where the case studies were carried out.

I would like to thank the Regional Office of Housing and Urban Development, USAID, for providing partial support for this programme, and our partner institutions - the Institute of Mountain Disasters and Environment, Chinese Academy of Sciences, Chengdu, China; the Department of Planning and Architecture, University of Roorkee, India; the Central Department of Geography, Tribhuvan University, Nepal; and the Aga Khan Rural Support Programme in the Northern Areas of Pakistan for the enthusiasm with which the case studies were undertaken.

From ICIMOD, Dr Pitamber Sharma played the key role in initiating, providing the methodological guidelines for, and coordinating the programme. He also took the responsibility of integrating the different case studies into this form with the help of Mr Narendra Khanal. I would like to thank them both for making this publication possible.

Egbert Pelinck
Director General
March 1996

Acknowledgments

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Abstract

Small towns and market centres can play an important and effective role in the development of mountain areas. However, strategies for the identification and assessment of the potentials of market towns and the formulation of a specific programme to develop the market town potential in mountain areas of the Hindu Kush-Himalayas are lacking.

The present report builds upon existing literature and elucidates the application of the methodology for the assessment as well as the development of prioritised action plans of the market towns with most potential in Dechang County in Sichuan Province, China, Tehri Garhwal district in the UP hills, India, Dang district in Nepal, and Ghizar district in the Northern Areas in Pakistan. These areas represent the diverse physiographic, spatial, and economic context of the Hindu Kush-Himalayan (HKH) mountains.

Spatio-economic profiles for each of the districts were prepared on the basis of secondary data complemented by field-level information. These profiles provide the socioeconomic, demographic, and development parameters as well as the policy context of the development of market towns. Several criteria were used in each context to identify and assess the market towns with the most development potential. On the basis of the field visits and participatory rapid appraisal methodology, several prioritised areas of action are identified for the promotion of a selected number of market towns with the most development potential in each context.

The exercise brings forth the enormous importance of the strategy for regional infrastructural development of market towns, both in the realisation of the production potential of the hinterland and in enhancing the forward and backward linkages. Human resources' development and the strengthening of the local-level institutional mechanisms also appear as key elements in designing 'interventions' for the promotion of market towns.

In the context of the HKH countries, where planning manpower is often top heavy, the studies also demonstrate the partnership that can be established between academic institutions, rural development agencies, and governmental agencies in supporting demand-driven approaches to the promotion of market towns.

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1 INTRODUCTION

The Role of Market Towns in Mountain Development

Market towns have the potential to play a number of roles in bringing about the economic transformation of rural areas. They can act as effective and generative links between the overcrowded primate cities and large urban centres and the vast rural hinterland. They can also provide the critical marketing link between larger urban centres and dispersed and, often, disorganised local markets. Many market towns already act as bulking and distribution centres in their respective resource contexts. Marketing remains an important but often ignored link in the food system of rural areas. This is particularly true in the mountains where different micro-environmental conditions necessitate specialised production systems responsive to diverse environmental conditions. The full potential of such systems cannot be realised, given the absence of opportunities for marketing farm produce and the lack of provisions for support services, such as inputs and credit, which would allow the eventual growth of secondary and tertiary activities. Market towns can, therefore, not only create conditions for augmenting farm production but also provide a basis for structural transformation of the economy.

As centres of commercial activities and social services, market towns provide off-farm employment, which is the key to relieving the pressure of an increasing population on land resources. For poor and marginal households in particular, such towns can provide gainful wage employment that supplements household incomes. As marketing linkages are strengthened, local and regional demands can induce the indigenous development of productive sectors. With appropriate infrastructural growth, many market centres can become eventual locations for small-scale industrial development. In the context of the Hindu Kush-Himalayas (HKH), where the increasing pressure of population on natural resources has been creating many socioeconomic and environmental problems, market towns can play a vital role in the sustainable development of this region.

A major problem evident in mountain areas is the inability of governments to provide basic services such as health, education, drinking water, and electricity to far-flung dispersed, smaller settlements. In such instances, settlement agglomeration may be a goal of spatio-economic planning. The role of market centres and small towns in the process of population redistribution and settlement agglomeration can also be significant. Further, market towns can play an institutional role, in terms of providing the channel of communication between rural producers and urban consumers and decision-makers. Therefore, they can be viewed as facilitators of social, economic, financial, and political communication within the national space.

In spite of the significant role of market towns in the evolution of hierarchically integrated regional and national settlement systems; in organising the production potentials of the vast rural hinterland; in mobilising resources for regional development; and in setting the pace for agricultural transformation and bringing about a more balanced development of the space economy, the promotion of market towns, through appropriate policies and programmes, has been neglected in the mountain regions of the HKH. Several issues need to be addressed in an effort to promote the growth of such towns.

First, the generation of gainful off-farm employment is crucial to the whole question of mountain development. Therefore, the potentials of different locations to play this role need to be assessed and articulated. Related to employment are the gender implications of the growth of market towns. The extent to which market towns can address the needs of women, through expanded employment opportunities, through training and skill generation, and through the recognition of their role as the managers of the environment, also needs to be assessed.

Second, infrastructural growth, particularly in terms of road links, has been regarded as a major constraint in the process of agricultural transformation in the mountains. Often the productivity and profitability of specialised agricultural and

horticultural production in mountain areas are directly related to infrastructure. A proper assessment of market towns can provide not only the basis for prioritisation of infrastructural growth in selected locations but also guide the development strategies for infrastructural growth in the region as a whole. This factor is currently lacking in most of the mountain areas of the Hindu Kush-Himalayas.

Third, the private sector is expected to play a vital role in mobilising resources and in diversifying the production structure, based on the comparative advantage, in almost all the countries of the Hindu Kush-Himalayas. It is generally found that businesses in market towns have limited access to inputs, credit infrastructure, and/or support services which constrict their productivity and profitability. Market centres can become the loci of private sector initiatives provided that incipient opportunities with potential are identified and a coordinated public investment programme operationalised as a guide to the private sector.

Fourth, rural areas are generally believed to be resource scarce and, therefore, unable to generate and mobilise resources. While the amounts of resources generated in rural areas might be small, there is enormous potential for resource mobilisation, particularly of those tied to the provision of services in market towns. This is an area requiring careful assessment and attention because the sustainability of public sector investment very often depends on the tapping of such resources.

Fifth, the environmental implications of the growth of market towns is another issue. It is necessary to assess the vulnerability of market towns to environmental disasters, such as landslides, earthquakes, and flooding, in order to ensure that the risks of public and private investments are minimised. Similarly, environmental sanitation, such as drainage, sewerage, solid waste disposal and management, needs to be assessed before substantial investments are made, because efforts to take care of these problems at a later date are less efficient and often very costly.

Last but not least, market towns have been neglected in public investment programmes and in charting strategies for infrastructural growth. Broad-based investment, institutional, and policy reform strategies related to market towns in mountain areas have remained conspicuous by their absence. Even when attempts are made to address this gap, the objective conditions of mountain areas (Jodha 1991) have tended to be neglected. Mountain areas face the problem of inaccessibility. They are also fragile in the sense that inappropriate use or misuse of resources can lead to irreversible damage to the ecosystem and the environment. Mountain areas are diverse in terms of physiography and resource bases and, therefore, the sustenance of market towns must be based on the proper utilisation of environmental resources. As marginal entities in the political and economic sense, mountain areas suffer from a lack of the development of institutions and policy strategies that would allow the growth of spatio-economic nodes which can negotiate fairer terms of trade vis-a-vis the plains.

While the benefits and linkages from market town development have been acknowledged in theoretical as well as empirical literature (Rondinelli and Ruddle 1978, Taylor 1981, Mathur 1984, Potter and Unwin 1989, Leinbach 1992, Bajracharya 1995, among others) efforts to test methodologies for assessing potential market towns in the hill-mountain context and preparing specific plans for the promotion of such towns have been lacking.

It was against this background that ICIMOD's programme on Market Towns was initiated. The programme was basically oriented to fill this lacuna and provide a substantive basis for advocating the promotion of market towns as an essential corollary to integrated mountain development.

Objectives of the Market Town Assessment Studies

The present report is based on the market town assessment work conducted and coordinated by ICIMOD in China, India, Nepal, and Pakistan. The China study was funded entirely by ICIMOD, and the Regional Office of Housing and Urban Development (RHUDO), USAID, provided support for studies made in the other countries.

The following were the specific objectives in each case.

I) To develop a spatio-economic profile of a district and assess the potentials of market towns in terms of

- existing and potential infrastructure and provision of services,

- potential for diversification and specialisation in agricultural production, processing, and other secondary and tertiary activities,
- opportunities that can be exploited by the private sector,
- employment generation and gender concerns, and
- environmental impacts and disaster vulnerability and mitigation.

ii) To review and assess policies and programmes that have a bearing on the development and growth of market towns.

iii) To develop guidelines and recommend Action Programmes for the promotion of market towns with the most potential in each context.

The Study Areas

The four areas chosen for the study and the development of the action programmes exemplify the diverse economic and spatial context of the Hindu Kush-Himalayas (Map 1). **Dechang County in Western Sichuan in China** represents a mountain context in which basic infrastructure, built up during the socialist planned economy period, is gradually being transformed to serve the 'socialist market economy'. The area is relatively accessible with quite a number of mineral and agro-based industries, government-operated marketing cooperatives, and a number of urban centres. **Tehri Garhwal District in the Uttar Pradesh hills of India**, which stretches over the middle and high mountains, has a number of central and functional small towns which are linked by roads and a variety of incipient production activities. The area is impacted by the flow of seasonal religious tourists. **Dang District of Nepal** is an inner *Terai* valley surrounded by the Siwalik and Mahabharat ranges. It is relatively accessible with some established urban areas and has also received considerable development assistance in the form of the Rapti Integrated Rural Development Project funded by the USAID. **Ghizar District in the Northern Areas of Pakistan** exemplifies a context in which the basic conditions for the development of market towns, by virtue of the problems of inaccessibility and remoteness, have to be created by discreetly identifying and providing for basic infrastructure. The study areas also manifest the diversity in physiography, climate, population process, and production potential that is typical of the HKH region. Dang District in Nepal is a latitudinal valley surrounded by the lesser Himalayas, whereas Tehri Garhwal District in the U.P and Dechang County in China typify a diverse topography with deeply incised valleys and ridges. Though Dechang County in China falls within the Monsoon regime, like Dang and Tehri Garhwal, this area is characterised by a relatively high range of temperature and longer periods of sunshine creating different agro-ecological conditions. Ghizar District of Pakistan lies in a rainshadow area and has insular climatic conditions with very little rainfall. Also, as in many other parts of the HKH, the population density decreases from the middle HKH both to the east and west.

Collaborating Institutions

The studies were undertaken by ICIMOD in collaboration with national institutions in each country. In China, the collaborating institution was Chengdu Institute of Mountain Disaster and Environment, Chinese Academy of Sciences; in India, the Department of Architecture and Planning, University of Roorkee; in Nepal, the Central Department of Geography, Tribhuvan University; and, in Pakistan, the Enterprise Development Division of the Aga Khan Rural Support Programme in Gilgit in the Northern Areas. In the context of most HKH countries, where the planning manpower is often top-heavy, the studies were also intended to demonstrate the partnership and complementarity that can be established between academic institutions, rural development institutions, and governmental and other agencies responsible for the promotion of small towns and market centres.

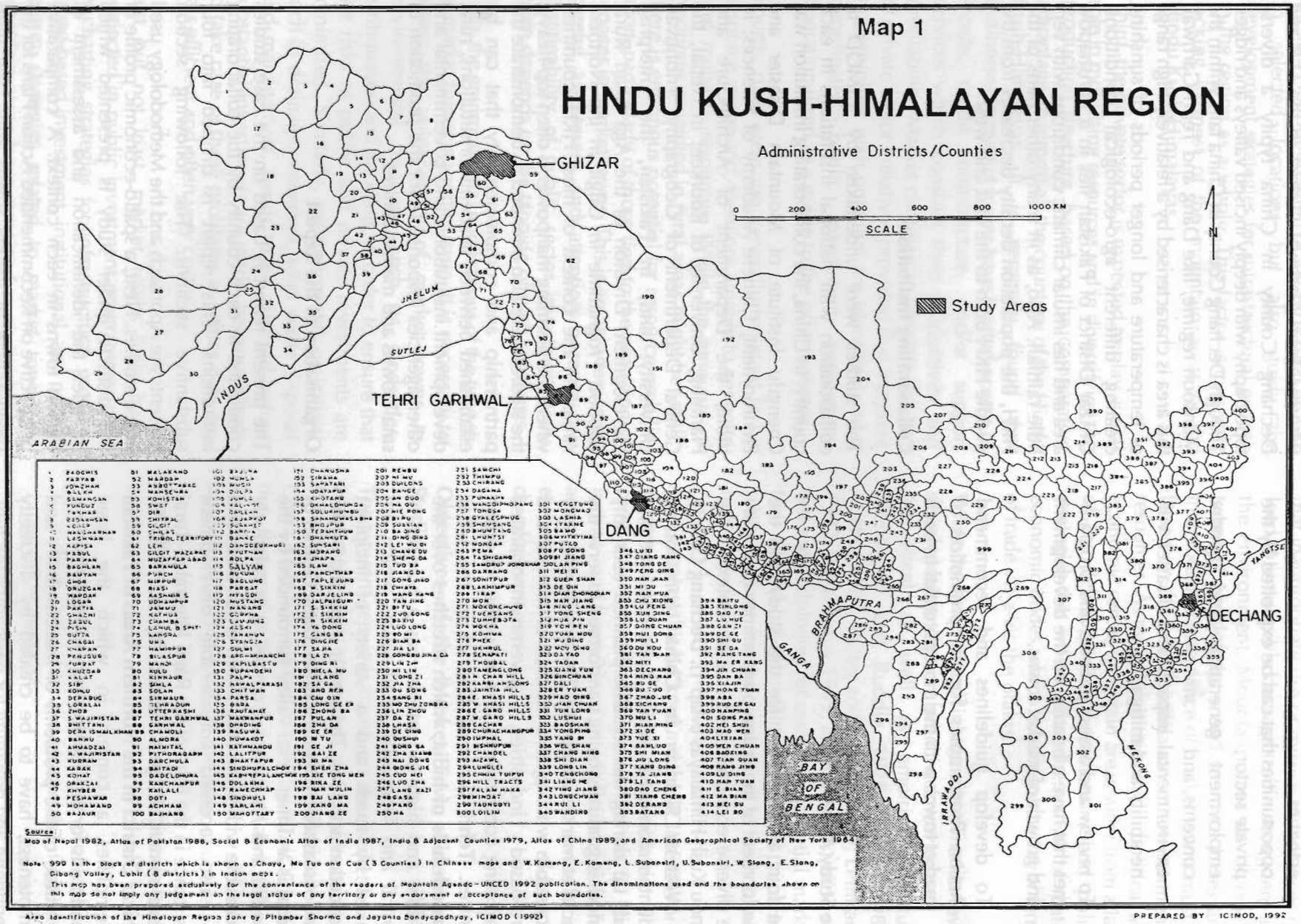
Organisation of the Report

The present report is based on the case studies conducted in each country by the collaborating institutions. This report is divided into four substantive sections. The following section presents the Approach and the Methodology used in the studies. Next, a spatio-economic profile of the districts under study is presented which includes the identification and assessment of market towns in each context. A comparative perspective on Recommended Action Plans for the development of market towns with the most potential is then given. The final section presents the main conclusion and recommendations.

Map 1

HINDU KUSH-HIMALAYAN REGION

Administrative Districts/Counties



Source:
Map of Nepal 1982, Atlas of Pakistan 1986, Social & Economic Atlas of India 1987, India & Adjacent Counties 1979, Atlas of China 1989, and American Geographical Society of New York 1964.

Note: 999 is the block of districts which is shown as Chayu, Mo Tuo and Cuo (3 Counties) in Chinese maps and W. Kameng, E. Kameng, L. Subansiri, U. Subansiri, W. Siang, E. Siang, Dibang Valley, Lohit (8 districts) in Indian maps.

This map has been prepared exclusively for the convenience of the readers of Mountain Agenda - UNCED 1992 publication. The denominations used and the boundaries shown on this map do not imply any judgement on the legal status of any territory or any endorsement or acceptance of such boundaries.

Area Identification of the Himalayan Region done by Pitamber Sharma and Jayanta Bandyopadhyay, ICIMOD (1992)

PREPARED BY ICIMOD, 1992

2 APPROACH AND METHODOLOGY

The approach to market town assessment followed in the country studies was basically built on the *Methodology and Guidelines for Market Town Intervention and Assessment* proposed by Garnett et al. (1989) and was based on a number of assumptions.

Assumption underlying the Approach to Market Town Assessment

In the predominantly rural mountain context, a market town assessment process should begin by looking at the agricultural potential of the area, the centrality in terms of the provision of social and economic services, and the perceptions of the local population regarding potentials and constraints to development.

One of the principal assumptions is that market towns can play an important role in making agriculture more productive and commercial. Therefore, market town assessment should be guided by considerations of ***agricultural development*** and diversification, so that a market-responsive process is set in motion.

The ***needs of the private, informal sector*** have to guide market town development interventions, because it is this sector which provides almost all off-farm employment opportunities. Further, the assessment and selection of market towns need to be guided by considerations of their economic growth potential, as 'intervention' programmes would not be sustainable otherwise. A ***demand-driven approach*** is therefore essential. Programmes for the promotion and development of market towns with potential need not be based on the creation of infrastructure by the government alone. A number of other possibilities, such as credit programmes, liberal policies with respect to promotion of business or industries, enhanced efficiency of local governments, and efficiency in mobilising local resources, should also be considered. This means that market town development programmes need to be ***broad-based***. In the development of 'intervention' programmes, as well as in the assessment process as a whole, it is essential to use ***participatory rapid rural appraisal techniques***. These techniques have the potential to ensure the involvement of local people in the identification and solution of their own problems. Finally, it is absolutely essential to ***involve local authorities*** in the process of assessment as well as in drawing up recommended action programmes for interventions. This process can set in motion a market town development process that is owned by local authorities, businessmen, and community leaders. Also, the infrastructure and other facilities that may be created need to be maintained and operationalised by local authorities.

Market Town Assessment Process

Ideally, the locational distribution and hierarchical organisation of market towns can best be assessed and analysed at the regional level. However, such an exercise would require more time and resources. For the purposes of the studies, a district or equivalent administration unit was chosen for the analysis and assessment of market towns.

The assessment process began at the district level. Accessibility and infrastructure were taken as factors in the choice of the district, because market towns can grow and prosper in a relatively dynamic and articulate spatio-economic context.

Once a district was agreed upon for investigation, the assessment process basically consisted of three sequential steps:

a) collection and analysis of information related to the spatio-economic context of the district and the identification of market towns;
b) selection and assessment of market towns for detailed investigation; and
c) formulation of intervention programmes for the promotion of the selected market towns.

While (a) could have been undertaken prior to the field visit, (b) and (c) were investigated through field visits.

Development of a District Spatio-economic Profile

The macro picture at the district level provides the spatio-economic context of the market towns in the district. For much of the district-level information, we had to rely on secondary sources of data, including censuses, thematic and sectoral studies, reports of ongoing projects, feasibility studies, and so on. Such data should provide a fairly good picture of the demographic and employment situations and trends, infrastructural network, sectoral economic situation, as well as factors that have contributed to enhancing or deterring the spatio-economic growth process in the district.

Chart 1 presents key areas of investigation at the district level. The areas of investigation should be taken as indicative of the type and nature of data required in the analysis of the macro-economic context. The perceptions of the national/regional level agencies and institutions, whose activities have a bearing on market town development in the district, must be sought at the very outset so that planned or proposed activities can be taken into account during the assessment process.

Identification of Market Towns

Market centres and towns are defined differently in different contexts. Relative clarity in definition is essential. Depending on the context, the number of functional units as well as the functional range (indicative of the variety of functions) can be taken as the criteria for the definition of market towns. Infrastructural characteristics (e.g., roadhead, postal and communication services, and other facilities such as health and education services) are also sometimes included in recognising market towns. It is normally easier to define market towns if some kind of quantitative criterion is taken into account.

In the countries under study (China, India, Nepal, and Pakistan), the information bases on settlements and settlement systems are better at the municipality level. Information on market towns, however, has to be gleaned from a variety of sources. The most recent district gazetteer or registry of settlements can be used to identify the universe of 'market towns' in the district under study. Since market towns tend to be inordinately influenced by the location/ alignment/extension of road networks, new developments with respect to infrastructure should be noted and enquiries directed to finding out the status of market towns in such areas.

Each market centre identified needs to be mapped with respect to population, employment, and other attributes, including infrastructure. Based on available secondary information, attempts can then be made to discern the existing hierarchy as well as the classification of market centres in the district. Maps are among the basic tools in the analysis of market centres.

Once the market centre is identified and its hierarchy, the economic growth potentials of its hinterland, infrastructural development, population growth, site and situation are discerned, a few market centres can be selected for detailed investigation.

Selection of Market Towns for Detailed Investigation

After identifying a few market centres for detailed investigation, a *Rapid Appraisal* approach can be used to select market towns. This approach consists of

- the analysis of secondary data and mapping and
- *structured* key informant interviews based on selected indicators.

While the analysis of secondary data and mapping can lead to qualification of the attributes of each market town, the *structured* key informant (appropriate government and private sector) interview can provide a qualitative basis for making the selection of potential market towns. The criteria to be used in selecting potential market towns is given in Chart 2. Based upon these criteria, interview guidelines and scoring forms can be developed. After interviewing key informants and determining the scores, a chart for cross town comparison of scores can be developed, so that towns can be ranked by their potentials as indicated by the scores.

Once the market centres are identified, a few (perhaps three or four) market centres may be selected for detailed investigation. The selection criteria may be based on a guide such as that provided in Chart 2.

The purpose of market town assessment is to identify market towns with growth potentials and to formulate programmes to facilitate their sustain-

Chart 1: Market Town Identification: Key Areas of Investigation at the District Level

AREA OF INVESTIGATION	COMPONENTS	METHOD OF ENQUIRY	REASONS FOR INVESTIGATING
1. Macroeconomic Framework	a) Public expenditure b) National development c) Pricing policy	1. Review the latest macro-economic statistics on GNP growth, trade, sectoral development, terms of trade, and so forth. 2. Review recent public expenditure under development budget. 3. Roughly disaggregate by location within district. 4. Identify expenditures that will have major impact. 5. Assess impact of structural reform policies such as price liberalization (or controls) on relative performance.	a) To establish a strong macro-economic context in which to assess market towns in district. b) To identify regions that will be impacted by ongoing or planned expenditure programmes: these may be expenditures in regions or linking regions (e.g., major highway improvements). c) High farmgate prices or lower fertilizer costs to farmers will promote regions with good marketable crop potential.
2. Population and Employment	a) Population growth b) Population distribution c) Employment structure d) Migration e) Income	1. Obtain from census latest data on population, population growth, employment growth by region, urban and rural. 2. Also from census, plot migration flows. 3. Note how employment structure is changing in district. 4. Identify areas within district with rapid population and employment growth and note that employment statistics are rarely useful; they typically cover only formal sector, which may be small proportion of total. 5. If census is out-of-date, try to obtain informal estimates of growth: e.g., sales of widely distributed consumer goods; business of bank branches; incidence of transport services. 6. Collect income (or expenditure level) data from household expenditure surveys, and other surveys as.	a) To identify population trends in district. b) Data on employment structure may show how district economy is changing. c) Trends in patterns of expenditure and income will also be indicative.
3. Agriculture (and other sectors of importance)	a) Production by major crop by areas. b) Changes in above over time. c) Expected changes in future. d) Flows of crops by region. e) Marketing channels. f) Production flow and marketing channels of other sectoral activities.	1. Review commodity studies. 2. Interview large wholesalers, parastatal managers, crop production researchers, importers, exporters, processors, cooperatives and trade association officials. 3. Use maps to show flows and apparent surpluses and deficiencies.	a) To understand the agricultural basis for changing population distribution. b) To understand the role of town-based activities in agricultural marketing systems. c) To understand the situation and potential of other secondary and tertiary activities.
4. Infrastructure	a) Roads and other basic infrastructure like electricity, communication, health and education services	1. Update information from central agencies; locate basic infrastructure and services like banks, communication, etc. on maps; collect transaction data if available. 2. Identify development expenditure on urban infrastructure in market towns.	a) To assess the infrastructural situation in the district and identify major infrastructural nodes.
5. Government Policy	a) Review and identify government policies (spatial, economic, and infrastructural) that have a bearing on market town development.	1. Update information, interview major policy makers and heads of development departments.	a) To assess the policy environment for Market Town Development.

Source: Adapted from Garnett et al. (1989)

Chart 2: Generalised Market Town Selection Criteria

1. **Population**
   - Total growth
   - Net growth
   - Migration patterns

2. **Agriculture**
   - A. Total production
     - Historical growth patterns
     - Current growth relative to other towns
   - B. Growth in key cash crops
   - C. Ratio of marketed crops to total production
     - Ratio relative to other towns
     - Rate of growth in share marketed
   - D. Adequacy of crop storage facilities
   - E. Agricultural input situation and trends

3. **Commercialisation/Private Sector**
   - A. Number of functional units and growth trends
   - B. Trends in the range (variety) of functions
   - C. Ratio of commercial to institutional functions
   - D. Ratio of farm/off-farm employment
   - E. Private sector employment
     - Rate of growth
     - Ratio of private to total formal sector employment
   - F. Share of employment in manufacturing
   - G. Growth in volume of goods traded

4. **Financial Sector**
   - A. Overall ability to supply services
   - B. Share of formal financing in total financing
   - C. Adequacy of credit to local enterprises
   - D. Growth in formal sector deposits

5. **Infrastructure and Housing**
   - A. State and quality of roads (major, secondary, feeder)
   - B. State and quality of water/sewers/drainage
   - C. Adequacy of power (short and long-term)
   - D. Quality of dwelling units

6. **Environmental Context**
   - A. Site and situation
   - B. Proneness to natural hazards
   - C. Proneness to pollution and environmental hazards
   - D. Measures needed for mitigation

able growth. Therefore, the criteria shown in Chart 2 include many *proxies* for describing potential growth. These include major aspects of economic activity as indicated by population growth (in- and out-migration), agricultural production, local as well as export marketing, commercialisation and private sector activity (indicators of employment, market activity, etc), financial sector development (credit, services, deposits), and infrastructure (roads, water, sewers, power, quality of housing) and environment.

Since much of the information will be based on interviews with key informants, the key informants have to be selected with care. The probable key informants will be agricultural producers, extension agents, managers of parastatal agencies, urban consumers, retailers, wholesalers, managers of processing firms, transporters, importers/ exporters, representatives of cooperatives and trade associations, bank loan officers, local authorities, elected representatives, infrastructure managers, religious leaders, university teachers and researchers, personnel engaged in service sectors, etc.

Formulation of 'Intervention' Programmes for the Promotion of Market Towns

At this stage the focus is on analysing the data and determining the areas in which programmes can be developed to facilitate the growth of market towns with potential. The areas in which detailed investigations should be conducted include population and employment, economic activities, infrastructure, investment priorities, public sector, human resources, financial resource availability, and the environmental aspects (Annex 1).

The formulation of programmes for intervention should be a participatory exercise, because the recommendation in the action plan must be collectively *owned* by the market town authorities and business as well as community leaders for it to be the basis for subsequent action. The action plan recommendation should include (a) description and analysis of potential economic activities and their linkages; (b) land use and infrastructural framework; (c) institutional framework for undertaking programmes; (d) plans for human resources' development; and (e) environmental impact of recommendations. The type and level of investment with assigned cost value for each proposed action programme should be clearly delineated together with a scheme for investment priorities.

It was under the methodological framework discussed above that assessment of market towns in four districts was proposed. However, based on the availability of basic data and the spatio-economic conditions of the areas, this methodology was modified to suit the contextual peculiarities of each district under study. The present report basically elucidates the application of this methodology in the assessment of market towns with potential in the districts under study in each country context.

3 SPATIO-ECONOMIC PROFILE, IDENTIFICATION AND ASSESSMENT OF MARKET TOWNS

Introduction

The analysis of market towns requires an understanding of the macro-economic and spatial framework of the districts under study. Therefore, the spatio-economic profiles of the districts under study were prepared on the basis of secondary data and later complemented by field-level information. These profiles provide the socioeconomic, demographic, and developmental parameters and context for the development of market towns in the district and include an analysis of the nature and trends in population and employment, the dynamics of the production sectors, the nature and type of infrastructure, and factors contributing to the spatio-economic development of the district and locational identification of market towns. The basic features of the spatio-economic profiles of the districts are (Dechang County, China; Tehri Garhwal, India; Dang District, Nepal; Ghizar District, Pakistan) briefly summarised below and a comparative perspective is provided at the end.

Dechang County, Sichuan Province, China

Spatio-economic Profile

Dechang is one of the seventeen counties of Liangshan Yi Autonomous Prefecture of Sichuan Province. Geographically, it is located between latitudes 27°05' and 27°36'N and longitudes 101°54' and 102°23'E. It has an area of 2,288sq.km. The county is basically mountainous and is comprised of steep mountain slopes and river valleys (Anning and Yalong). About 92 per cent of the total area is mountainous. More than 66 per cent is comprised of steep slopes. Only nine per cent of the total area is under cultivation. Forests occupy more than 63 per cent of the total area, followed by meadows (17%) and shrubs (8%). The county is drained by the Yalong and Anning rivers. This area is dominated by the summer monsoon. The annual precipitation is 1,170mm. More than 90 per cent of the total rain occurs in five months (June - September). The average annual temperature is about 17°C. The high diurnal range of temperature, along with frequent sunny periods have made this area favourable for the production of good quality crops.

The mineral resources of the county are silica, iron ore, kaolin, limestone, marble, and granite. The reserves are too small to support big industries, but they can be used by rural industries.

The population of the county in 1993 was 170,504, of which 87,002 were males and 83,502 were females. The average annual growth rate of population between 1982 and 1990 was 1.53 per cent, and the rate for 1993 was only 1.02 per cent. The population density was about 75 persons/km^2. However, the density of population decreased with the increase in altitude, from about 150 persons/km^2 in the river valleys, to 80 persons/km^2 in the middle and low mountain areas, and less than 30 persons/km^2 in high mountain areas. The percentage of people with non-agricultural or urban[1] IDs was about 10, whereas the percentage of people living in county towns was 7.5. About 64 per cent of the total population above six years of age were literate. More than 85 per cent of the economically-active population were engaged in agriculture. Nearly seven per cent were engaged in the manufacturing and transportation sectors. Only a few youths migrated outside the county to find temporary jobs, and they returned for the Spring Festival every year.

Agriculture is the dominant economic activity of the county in the valley and middle mountains, whereas the main economic activity in the high mountains is animal husbandry. Slash and burn cultivation is also practised in some areas in the high mountains.

The rural economic structure has been changing since the 1970s, particularly after the introduction of economic reforms. Before the 1970s, cereals

1 In China the urban population is provided with non-agricultural identity cards which provide them with access to housing, subsidised rations, and similar facilities.

were the main agricultural crops. During the late 1970s, the sugar industry was established in the county. As a result, sugarcane became the main crop. With the continuation of reforms in China, animal husbandry, fisheries, and sideline production have become increasingly important sources of family income. In 1979, the crop contribution in the total output value of agriculture was about 70 per cent, followed by livestock (16%), sideline production (12%), and forestry (2%). In 1992, the share of crops in the total output value of agriculture was only 51 per cent, whereas the share of livestock, forestry, and fisheries increased to 36 per cent, six per cent and 0.4 per cent respectively. The share of cash crops in total cultivated land increased from about five per cent in 1979 to 26 per cent in 1992. The principal cash crops grown in the county are sugarcane, tobacco, tea, mulberries (silkworms), and vegetables in the lower valleys and fruits in middle mountain areas. The main grains produced in this area are rice and wheat in the valleys and maize, yams, potatoes, and cassava in the low and middle mountain areas. Vegetables are grown between January and February in the valleys. At this time, other areas of Sichuan Province and most parts of China cannot grow vegetables due to very low temperatures. These early vegetables have a large market and bring good economic returns to the farmers. As a result, the production of vegetables has been increasing. By 1990, vegetables accounted for about nine per cent of the total cropped area and contributed about 12 per cent of the total output value of crops in the county. The area is suitable for the production of high quality fruits and products such as apples, honey, peaches, oranges, and so on.

Agricultural products, mainly grain, mulberries, silkworms, and tobacco are purchased by marketing cooperatives managed by the government through fixed or mobile purchasing stations. Sugarcane is purchased directly from the farmers by the factory. Vegetables and high quality fruits are purchased by commercial enterprises and dealers coming from other areas. Since the main sources of local government income are taxes and interest from state-run enterprises, it has encouraged farmers to cultivate sugarcane.

Off-farm economic activities have been increasing in the county. In 1990, the contribution of non-agricultural economic activities was less (99.05 million *yuan*) than the total output from agriculture (131.66 million *yuan*)[2]. In 1993, the contribution of industry had exceeded (159.18 million *yuan*) the total output of agriculture (158.00 million *yuan*). The principal industrial products are bricks, cement, marble, kaolin, iron, electricity, wood, paper, wine, sugar, and matches.

The primary source of rural family income was still agriculture, which accounted for about 49 per cent of the total income, followed by animal husbandry (34%), off-farm activities (16%), fishing, and forestry (1%). The per capita income of farmers increased greatly and reached 551 *yuan* in 1992.

The main export items in the county are sugar, silk cocoons, iron, paper, fruits, and vegetables. The export of sugar and silk cocoons is controlled by the government. But other goods are exported by non-state run agencies and individuals. The imports consist of manufactured and construction goods and agricultural inputs.

National Highway Number 108 and the Chengdu-Kunming Railway pass through Dechang County. There are seven railway stations in the county. Out of the seven stations, three stations are used only for cargo. Running parallel to the railroad, Highway 108 passes through the Anning River Valley. The county has a local road network of 365km and is connected to Highway 108. The transport conditions in mountainous areas are rather poor. Dechang County has five medium- and small-sized hydropower stations which generate electricity worth 123.62 million kWh. Post and telecommunication services are poor in many areas. There are seven small post offices and 25 mailboxes in the valley areas of the Anning River and 20 temporary post stations in the mountainous areas.

The county has a total of 23 townships.[3] All these have electricity, marketing cooperatives, hospitals, and primary schools. Twenty townships are linked to the highway, seven have railway stations, 15 have credit cooperatives, 10 have markets, five have grain shops, and only three have post offices.

There are branches of the Industrial and Commercial Bank, the Construction Bank, and the Agricultural Bank managed by the China People's Bank. The Agricultural Bank basically provides

2. In 1993, when this study took place, there were 5.76 *yuan* to the US dollar
3 A township is a unit of local government.

loans to farmers needing investments to increase the scale of production.

According to the 1990 Census, there were 337 villages in Dechang County. Out of these, 64 settlements had a population of more than 1,000 and only 10 settlements had a population of more than 2,000. The big settlements are confined to the Anning and Cida valleys (Map 2). The aboriginal *Yi* people and other minority groups inhabit the middle and high mountains, whereas the im-migrant *Han* people live in the fertile river valleys.

Identification and Assessment of Market Towns

The spatio-economic profile provided the background for the identification of market towns and the assessment of market towns with the most potential on the basis of a number of criteria.

In the Dechang County context, a market town is defined as **a centre of services, culture, and communication with the commercial function of collecting and distributing local products and manufactured goods.** The market towns differ from common settlements in that these are formally announced by government notification.

According to the local chronicles, ten market towns existed in Dechang County in the earlier stage of the Quing Dynasty, about 250 years ago. They are Dezhou, Yonglang, Leyao, Mali, Ayue, Badong, Kuanyu, Cida, Xiaogao, and Jinchaun (Map 3). These market towns are in very advantageous locations and are still the centres of many services such as trade and commerce, health, education, communications, recreation, and finance. They are also characterised by the observation of a *market day* and a fixed street pattern and layout, unlike the rural settlements.

A Multiple-hierarchy Assessment Model was developed in order to quantitatively identify market towns with potential among these ten formally announced market towns in the county for further detailed investigation. The main factors considered in the model were: 1) the population, including its size and level of off-farm activity; 2) accessibility, which includes the quality of roads, post and telecommunication services, and planned road linkages; 3) economic base, which includes agriculture, other resources, financial ability, existing infrastructure, and historical importance; 4) function of market towns, including the number of commercial units, volume of trade and their trends; 5) hinterland, which includes size, centrality, and ability to attract trade; and 6) other factors, which include site and situation, natural conditions, pollution, and environmental hazards, which limit the growth of market towns.

First of all, the experts and key informants from different fields such as agriculture, town construction, regional planning, financial administration, market administration, transport and communications, and employment were interviewed to compare and judge objectively the factors listed above and to gain an idea of the relative importance quantitatively. Weightage values of the relative importance for all factors were calculated for use in the mathematical model (Annex 2). It was found that the function of the market towns, i.e., the number of commercial units, volume of trade, and their growth trends were the most important assessment criteria. The weightage value of these factors was 0.291. The economic base was found to be the second important factor with a weightage value of 0.213, whereas population, accessibility, and hinterland were assessed to be of relatively equal importance with a weightage value of 0.148 each. Other factors were given the lowest weightage value of only 0.052.

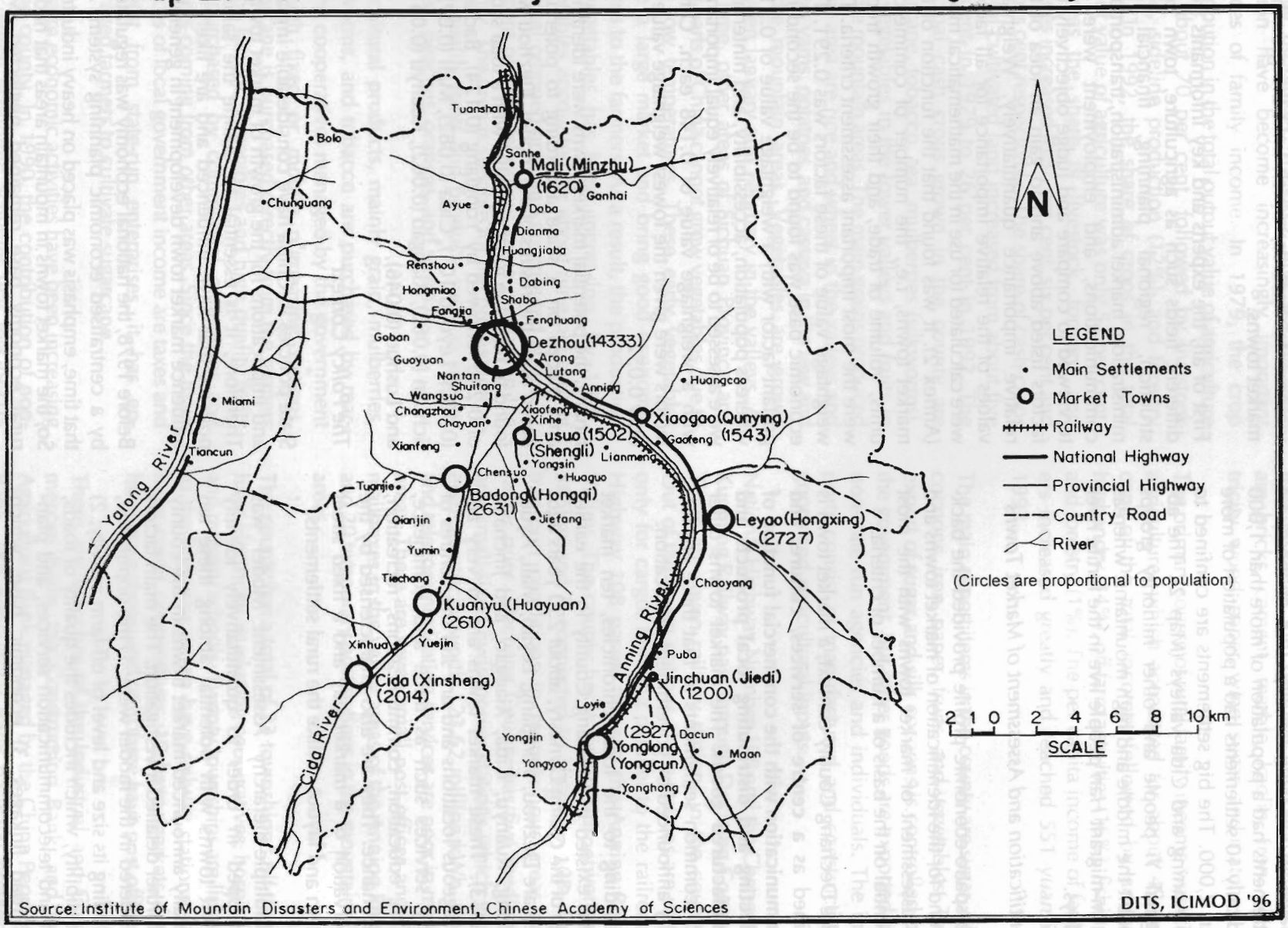
Finally, the potential market towns were identified and placed on a scale according to potential, based upon the results of the model. Dezhou was found to have the most potential with a total score of 0.246 followed by Yonglang (0.174), Badong (0.102), Leyo (0.101), Cida (0.082), Mali (0.072), Jichuan (0.068), Xiaogao (0.062), Kuanyu (0.051), and Lushuo (0.046).

The Policy Context

State policies in China have considerable impact and implications for the growth of market towns. Therefore, it is essential to outline the salient policies that have influenced and are likely to influence market town development in general.

Before 1978, the national economy was regulated by a centralised economic planning system. At that time, emphasis was placed on heavy industry. So, the market towns in mountain areas that had a rural economy base remained neglected. Migration of farmers from rural areas to urban centres was controlled by rationing state-supplied grains, edible oil, electricity, housing, and off-farm employment opportunities. Most rural inhabitants had

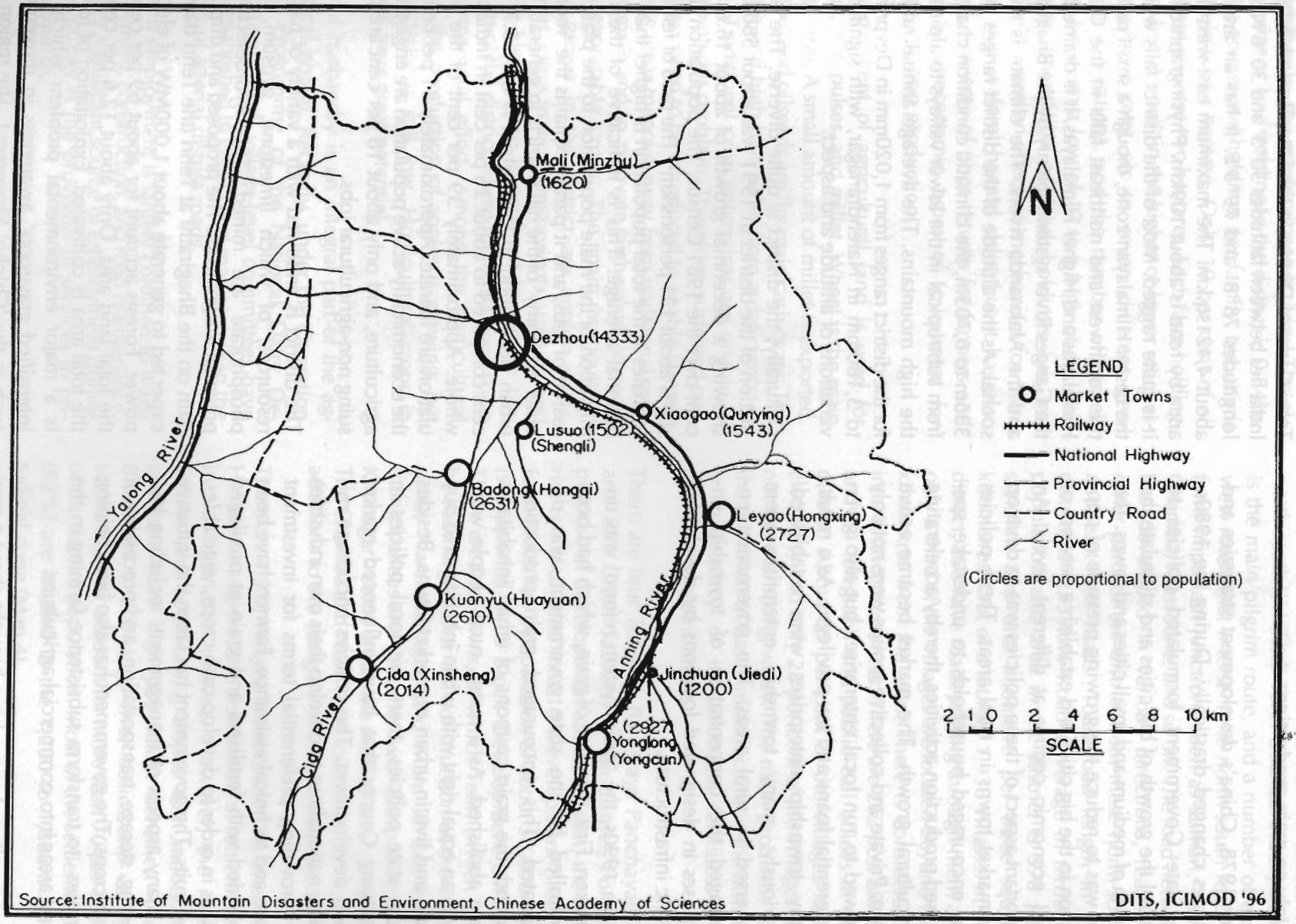
Map 2: Distribution of Major Settlements in Dechang County, China



Source: Institute of Mountain Disasters and Environment, Chinese Academy of Sciences

DITS, ICIMOD '96

Map 3: Distribution of Market Towns in Dechang County, China



to stay in the countryside and grow their own food. Individual economic activities were not encouraged. Individual non-agricultural undertakings were restricted. Farming concentrated mainly on grain production.

After 1978, China's development strategies and policies changed drastically. During the 1980s, the State Government formulated policies to control the growth of big cities and stimulate the growth of medium and small cities and towns. The aim was to reduce the growing pressure of population in the big cities and establish a network of local economic centres at different levels. An important aspect of these policies was to develop the market towns in rural areas. These policies also encouraged households to undertake specialised production activities, thereby accelerating agricultural growth. The market became active again. Private and collective groups were not only allowed to run local enterprises but also given preferential loans and tax privileges. As a result, many township enterprises were established. Previously, many township enterprises were dispersed in rural areas. The government encouraged the concentration of township enterprises in designated locations by developing public infrastructure.

In the 1990s, the 'grain system reform' was undertaken. First, the price of grain, which had been controlled by the state government, was deregulated. This encouraged grain production. Second, the grain coupons of urban inhabitants were abolished. As a result, rural people were given an equal right with urban inhabitants to buy grain and live in urban or market towns. Besides these state policies, there are local policies in Dechang County that have influenced market town development. The policies encourage minority nationalities to develop their own industries by providing preferential terms for investment loans and technical assistance. Farmers have been provided with fertilisers and grain at privileged prices in order to develop cash crops, vegetables, and fruits. The government has taken the initiative in many aspects of management, including harvesting, storage, transportation, and processing of cash crops. The government has also been helping farmers to transform subsistence farming in the rural areas into commercial agriculture.

These policy changes have brought about a new dynamism in market town activities. There is more scope for the spontaneous growth of functions in market towns now than there was earlier.

Tehri Garhwal District, Uttar Pradesh, India

Spatio-economic Profile

Tehri Garhwal District in the Uttar Pradesh hills of India lies between latitudes 30°3' and 30°6'N and longitudes 78°8' and 79°3'E. It has an area of about 4,421sq.km. The maximum east-west distance by road is about 109km. Physiographically, it is quite rugged. Most of the district falls within the Lesser Himalayan zone, though a small part in the southwest and northeast falls in the Outer Himalayas and Higher Himalayas. It is drained by the Ganges River system, mainly by the Bhagirathi and the Alaknanda rivers. The climate is monsoonal. As the altitude of the district ranges from 335m to 6,705m, the climatic condition changes from subtropical in the lower valleys to alpine in the high mountains. The average annual rainfall for the district ranges from 1,020mm in Devprayag to 3,180mm in Narendranagar, with significant variations of altitude and aspect.

Culturally, the district is quite diverse. The population of the district in 1991 was about 580,000 showing a decennial growth of about 16.6 per cent over the 1981 Census. The population density is about 131 persons/km^2. The ratio of females to males in the total population is higher than the national average. This is indicative of the outmigration of the male population to the plains in search of jobs, and it partly explains the 'money order economy' of the hill districts in general. The urban population in the district is only 5.7 per cent compared to about 26 per cent in India as a whole. Approximately 39 per cent of the population are literate. Approximately 81 per cent of the economically-active population are engaged in agriculture, and only about 18 per cent are pursuing non-agricultural jobs.

The district is endowed with a variety of natural resources, of which limestone, gypsum, and phosphorate are mined. The hydroelectricity potential is significant. The proposed and disputed dam on the Bhagirathi at Tehri (the Tehri dam) is expected to generate about 1,000MW of electric power. Forests account for about 69 per cent of the total land area. Only about 12.6 per cent of the total area is cultivated. Exploitation of forests is a major environmental problem which has intensified grassroots' awareness in movements such as the 'Chipko' Movement. The region has considerable potential for the growth of high-value horticultural and floricultural crops as well as aromatic and medicinal plants.

Tourism of a religious nature is an important activity. The potentials for nature-based tourism and related activities are also substantial.

Agriculture is the predominant activity. The average size of land holding in the district is 0.84ha. Of the operational holdings per family, two-thirds are below one hectare. Only 10 per cent of all holdings are over two hectares. Each farm holding-either big or small, in the higher or lower reaches-is dispersed over six to seven different geographical locations, and the number of parcels range between a low of 17 to a high of 40. This high fragmentation of land holdings has traditionally been an effective mechanism for managing high natural hazard risks, but it has also posed problems of poor returns for farmers and leads to uneconomic types of investment for improving crop production.

Sixty per cent of agricultural land is used for wheat, rice, pulses, and millet. Wheat is the main cereal crop. A small amount of millet is exported. Potatoes and oilseeds are the main cash crops. The middle and high hills suffer from a deficiency of food. Traditional crop enterprises are unable to cope with this problem. Therefore, sustained programmes need to be introduced to enable farmers in these areas to move away from traditional crop enterprises and to cultivate high-value, low-volume exportable crops. The main horticultural crops grown in the district are apples, pears, peaches, citrus fruits, plums/apricots, walnuts, and litchis. Horticulture is confined to certain tiny pockets of the district where there has been some entrepreneurial effort. Among the horticultural crops, the production of apples is growing, but productivity is still low. Horticultural crops in general have great potential.

Animal husbandry is an integral part of the agricultural system. Recently, under the Operation Flood Programme of the National Dairy Development Board, village-level committees have been established to collect and market milk in the vicinity of arterial district roads.

Off-farm employment is largely confined to wage employment, construction, and road maintenance. Another significant source of employment during May-October is the provision of services to pilgrims/tourists.

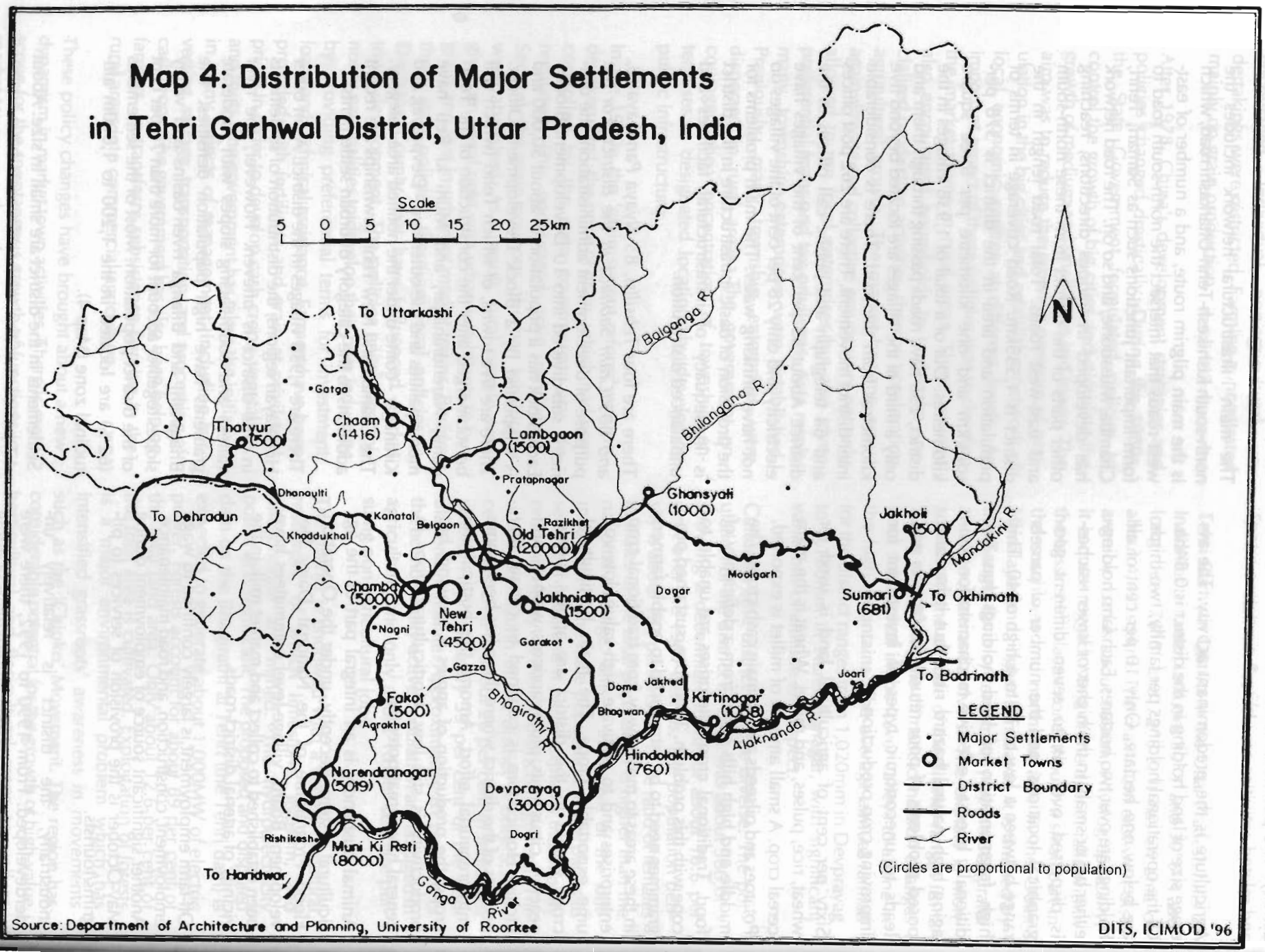
Industrially, the district is relatively underdeveloped. From 1990 to 1992, there were 107 small units with a total employment of about 1,400. Geologically and environmentally the district is not suitable for the establishment of heavy industries.

The main infrastructural network includes the north-south Rishikesh-Tehri-Uttarkashi road, which is the main pilgrim route, and a number of east-west roads that intersect the north-south road to form important junctions such as Sumari, Tehri, Chamba, Mussoorie, and so on. The road network has developed in various directions, reaching other parts of the district from these north-south and east-west roads. Total road length in the district is 1,535km. Road coverage in terms of population and area in the district is 378 persons/km and one kilometre per three square kilometres. Out of a total of 1,938 villages in the district, 256 have roads passing through them and only a third of the villages are located beyond five kilometres from the road. There is considerable inter-district movement. There are 262 post offices and 64 telegraph and public call offices in the district. About 65 per cent of the villages have electricity and only 28 per cent of the villages do not have drinking water. The main problems for the provision of basic infrastructure in the district is inadequacy of infrastructural facilities and unbalanced distribution.

There are four *Tehsil*(s), 85 *Nyaya Panchayat*(s), and 885 *Gram Sabha*(s) in the district. For the purpose of development administration, the district is sub-divided into 10 Development Blocks. Each Block has a population of about 50,000 and is supported by a Block Development Officer. There are five towns, of which Tehri (which will be submerged after the construction of the Tehri dam), Narendranagar, and Muni ki Reti have municipalities and the other two - Devprayag and Kirtinagar - come under the notified area category. The Chamba and New Tehri townships are recent additions to the category of urban settlements.

There are 1,938 villages in the district. As in other Himalayan regions, the distribution of settlements in this district is uneven. However, the river valleys and south-facing slopes with moderate gradients have high population densities. The Bhagirathi and Bilanga river basins and valley slopes together account for more than 70 per cent of the district population. Most of the settlements (62%) are located in the 1,200 to 1,800m altitudinal zone (Map 4).

Settlements in the district are small in size. About 47 per cent of the total settlements have a population of less than 200. The percentage of settle-


Map 4: Distribution of Major Settlements
in Tehri Garhwal District, Uttar Pradesh, India
Scale
5 0 5 10 15 20 25km
N
To Uttarkashi
Balganga R.
Bhilangana R.
Gatga
Thatyur (500)
Chaam (1416)
Lambgaon (1500)
Pratapnagar
Dhanaulti
To Dehradun
Kanatal
Belgaon
Razikhet
Khoddukhal
Old Tehri (20000)
Ghansyali (1000)
Jakholi (500)
Mandakini R.
Moolgarh
Chamba (5000)
New Tehri (4500)
Nagni
Jakhnidhar (1500)
Dogar
Sumari (681)
To Okhimath
Garakot
Gazza
Joari
To Badrinath
Dome
Jakhed
Fakot (500)
Agrakhal
Bhagwan
Kirtinagar (1058)
Bhagirathi R.
Alaknanda R.
Hindolakhal (760)
Narendranagar (5019)
Devprayag (3000)
Dogri
Rishikesh
Muni Ki Reti (8000)
To Haridwar
Ganga River
LEGEND
Major Settlements
Market Towns
District Boundary
Roads
River
(Circles are proportional to population)
Source: Department of Architecture and Planning, University of Roorkee
DITS, ICIMOD '96

ments having populations between 200 to 499 and 500 to 999 are 39 and 12 respectively. Only two per cent of the total settlements in the district have more than 1,000 people.

Approximately seven per cent of the total villages in the district can be termed rural central places, each serving an average of 15 villages and covering an influence area of about 14sq.km. Almost every block has a number of rural central places which are normally at road junctions or roadheads.

Identification and Assessment of Market Towns

As part of the study in Tehri Garhwal District, basic information on all the settlements was collected and field surveys were conducted in all the 10 blocks of the district. With the help of this analysis and the discussions with government officials, businessmen, NGOs, local leaders, and other development-related personnel, a short-listing of market settlements on the basis of perceived potentials was reached. The overall assessment of market settlements was made on the basis of 30 different, variable scores, both quantitative and qualitative. These included aspects and trends in population growth; hinterland; central services; potentials in trade, industry, tourism; development initiatives through government or local NGOs and other agencies, and so on (Annex 3).

For the purpose of this study, a market town is defined as **a census town (urban settlement) or a nodal village (rural central places in the context of Tehri Garhwal), having a minimum of 20 perennial commercial establishments (functional units); not less than three government offices; and serving a population of at least 2,000, excluding its own.**

A total of 16 market towns was short-listed to assess their potentials (Map 5). Among these, New Tehri and Chamba were found to have the highest potential for development. Another assessment was carried out for ten of these market towns, which included aspects such as potentials for marketable surplus and infrastructural requirements. However, the special circumstances in the area necessitated that the study not only focus on particular towns but on the whole Mussoorie-Chamba-Rishikesh axis from the perspective of future growth potential. The settlements in this axis make an interconnected functional entity as far as marketing activities are concerned. Diverse economic activities ranging from cereal crops and tropical fruit to rabbit farming, tourism, and electronic cottage industries exist. Therefore, all the axis towns were taken up for assessment. The important settlements or transit points on this axis are Suavakholi, Thatyur, Dhanaulti, Kanatal, Chamba, New Tehri, Ranichauri, Nagni, Jajal, Fakot/Agrakhal, and Narendranagar (Map 5).

In the particular spatio-economic context of Tehri Garhwal District, the key to providing the necessary stimulus to development was seen as:

- the creation of specific action plans within the structure of programmes that already exist;
- the creation of entrepreneurship cells to encourage the spirit of enterprise;
- the creation of a series of backward and forward linkages for the production and marketing of produce; and
- identification and assistance in production of a range of marketable products, agricultural and others.

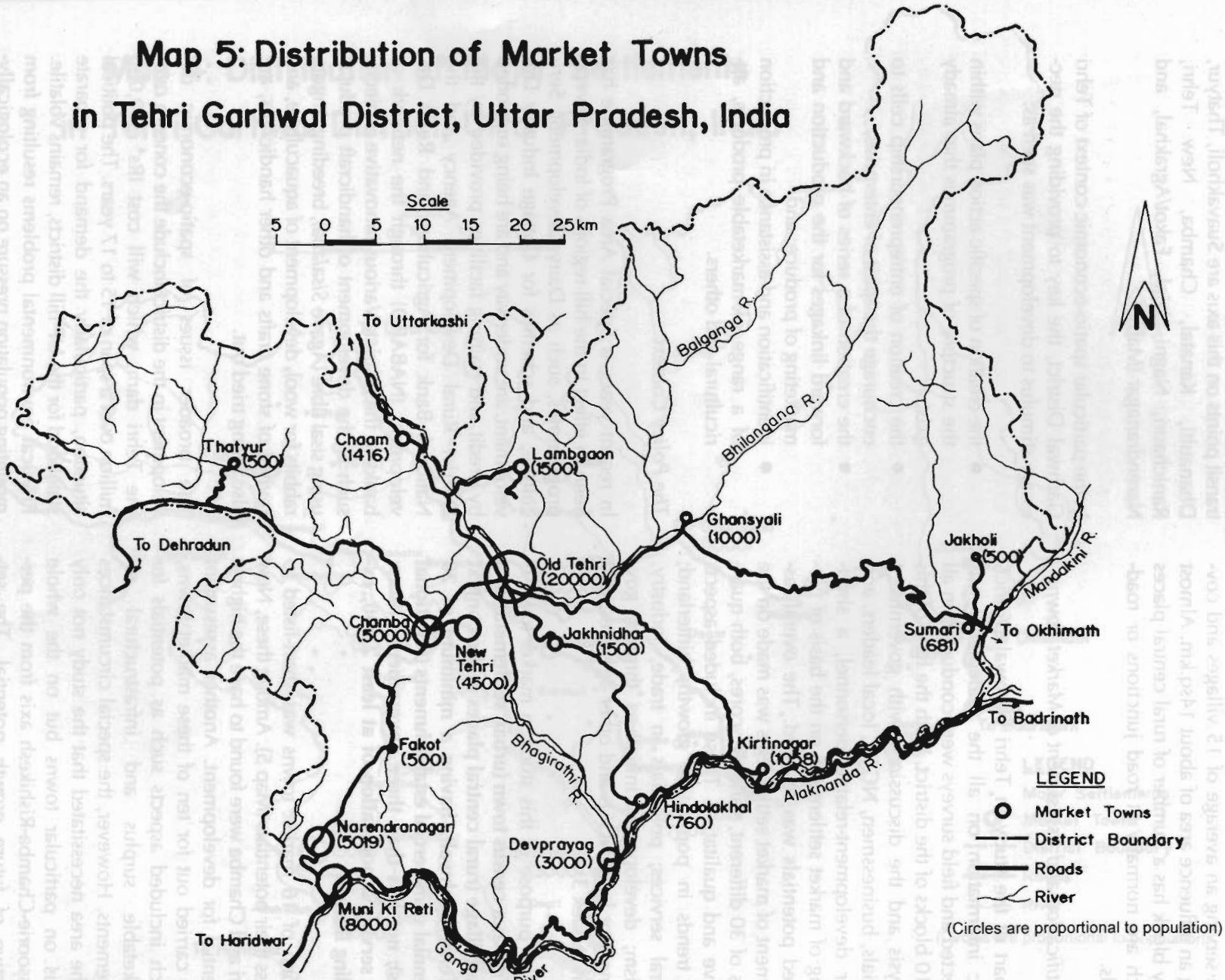
The Policy Context

In recent years, a Special Area Programme has been in effect in the hill regions of India. Several programmes, such as Dairy Development, Sericulture, and schemes for Cottage Industry Development, are underway and are being supported by credit and training facilities provided by the District Rural Development Agency and the National Bank for Agriculture and Rural Development (NABARD) through the network of banks in the district. Various innovative projects, such as the development of handicraft products using sisal fibre (*Agave Sisalana*), breeding Angora rabbits for wool, development of aquaculture, and revival of stone crafts and other handicrafts, are also being tried out.

The broader issues of spatio-economic development in the district include the concern over the Tehri dam, which will cost IRs[4] 300,000 million over a span of 15 to 17 years. The political situation, particularly the demand for separate statehood for the UP hill districts, remains volatile. Physical environmental problems resulting from mounting population pressure on an ecologically-

4. US$ 1.00 = IRs 31.36 in 1993

Map 5: Distribution of Market Towns in Tehri Garhwal District, Uttar Pradesh, India



Source: Department of Architecture and Planning, University of Roorkee

DITS, ICIMOD '96

fragile environment call for a well-coordinated, decentralised, integrated, people-focussed programme for development. Institutions, other than those of the government, also could be made to play a major development role based on participatory approaches. Although they are the backbone of the Garhwal economy, women bear the brunt of the growing environmental and economic problems. The zeal to improve the environment and economy on the part of women is manifested by the functioning of a number of *Mahila Mandal*(s) throughout Tehri Garhwal District.

The main development problems, as perceived by the government in the district, are related to inadequate irrigation facilities, land fragmentation, an inadequate marketing network, inadequate transportation and communication facilities, erratic and inadequate supply of electricity, absence of agro-based industries, and inadequate health and educational facilities. A block-level survey in the district has revealed that there is medium to high potential for the development of horticulture and floriculture in all the blocks. Except for Kirtinagar, there is great potential for the development of tourism and related activities. Out of a total of 10 blocks in the district, six have medium potential for industrial development and only five have medium potential for the development of agricultural crops.

Dang District, Nepal

Spatio-economic Profile

Dang District in Rapti Zone in southwestern Nepal typifies the demographic and economic conditions of the Inner *Terai* region of Nepal. The district lies between latitudes 27°40' and 28°15'N and longitudes 82°10' and 82°53'E with an area of 2,955sq.km. The elevation ranges from slightly over 200m to over 2,000m. The east-west extent is about 90km. The district has 39 VDCs (Village Development Committees) and two municipalities. The district consists of three distinct physiographic regions : a) middle mountains, b) Siwalik hills and c) Dun valley and *Terai* plain. The Dun valleys, namely Dang and Deukhuri, account for more than 38 per cent of the total area of the district. The Rapti and Babai are the two important rivers. Because of the elevation range, a tropical climate prevails in the lower valleys and a warm temperate climate in the upper mountain areas. The average annual rainfall is about 940mm and is heavily concentrated in the summer monsoon season. Winters remain dry, for the most part.

The population of the district was 354,413 in 1991 with a slightly higher ratio of females. The overall dependency ratio[5] was about 35. The average annual population growth rate in the district has remained consistently high since the 1970s. It was 4.73 per cent between 1971 and 1981 and 2.9 per cent between 1981 and 1991. This high growth rate has been due to migration from the adjoining hill region, a phenomenon that has been pervasive throughout Nepal in the last three decades. As a result, the native *Tharu* population has been overwhelmed by migrants and in 1991 accounted for only about 30 per cent of the total population. The population density is about 120 persons/km^2. About 40 per cent of the district population were literate in 1991; this rate was only about 24 per cent in the case of women. The urban population percentage in 1991 was 15 and the movement of the people from rural areas to urban has been increasing. The development of basic infrastructural and service facilities such as roads, education, and health; increased commercial activities in urban areas; and the absence of non-farm employment in the rural areas are the reasons for the acceleration of rural to urban migration.

Agriculture is the main occupation, with 80 per cent of the economically-active population dependent on it in 1991. Manufacturing involved less than two per cent of the active population. The dependance on agriculture shows a decline, but there is an increase in the importance of personal and commercial services as well as in the commerce/business sector. The district does not have mineral and hydropower resources. About 26 per cent of the district land area is under cultivation and about 67 per cent is classified as forests. As in other parts of the country, the forests in this district are severely degraded and the general condition is deteriorating.

In terms of agricultural production, the main cereal crops are paddy, maize, wheat, barley, and millet. Oil seeds and potatoes are the major cash crops. Beans and lentils, although grown on small plots, are considered important by the majority of farm households, because they are sources of

5. Dependency ratio here refers to the proportion of children and old people in the total population

additional income. There has been a trend towards increasing cereal crop yields. However, depending upon the monsoon, fluctuations in crop yields are reported. The growth in cereal grain production has not been commensurate with population growth. The total area under cash crop farming has been on the rise. About 24 per cent of the total cultivated land is irrigated. Lack of year-round irrigation has resulted in low land-use intensity. The average land holding is about one hectare, but the operational holding is only about half a hectare. Land distribution is skewed and fragmented. Livestock is an important part of the farming system, but the productivity of livestock is quite low. The main horticultural crops are mangoes, bananas, guavas, jack fruit , lemons, and pomegranates. The prospects for specialisation and diversification of agriculture are considerable in Dang District. With the development of irrigation facilities and a marketing infrastructure, the agricultural surplus can provide the basis for the growth of agro-enterprises. Dang exports cereal grains to adjoining food-deficit hill districts. Oil seeds and potatoes find markets in other *Terai* and hill towns such as Nepalganj, Bhairahawa, Butwal, Pokhara, Palpa, and so on. There is great scope for the development of off-season vegetables in the district.

In 1994, Dang District reported a little over 600 small industrial units, half of which were agro-based industries. However, most appeared to be family-owned and employing units. The farm household in the district has an average annual income of NRs[6] 11,614. The main source of cash income in the district is the sale of cereal and cash crops, followed by civil service, trade, and livestock sales.

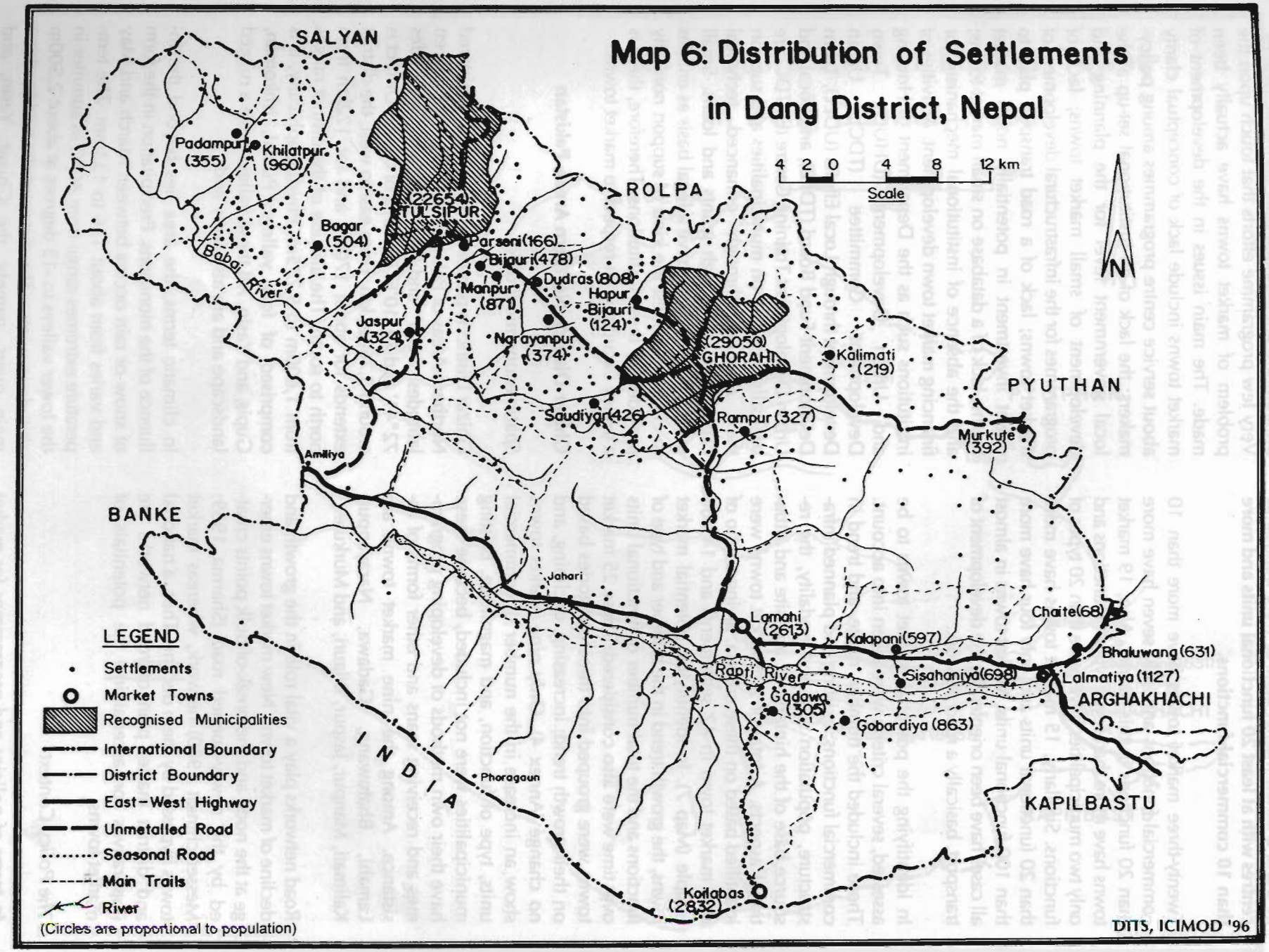
Dang has been the beneficiary of the USAID-funded Rapti Integrated Rural Development Project (RIRDP). The focus of the RIRDP has been on providing infrastructure (drinking water, irrigation) and village self-help programmes.

Dang is one of the easily accessible districts of Nepal. The construction of the East-West highway, which passes through the Deukhuri Valley, and the link with Ghorahi (Tribhuvan Nagar) and Tulsipur has created a spatio-economic context that has nurtured the growth of an east-west flow of trade and traffic. Similarly, the construction of north-south roads, such as Ghorahi-Pyuthan, Bhaluwang-Pyuthan, and Tulsipur-Salyan, has facilitated a north-south flow of trade and traffic. Formerly, Koilabas on the Indian border was the main trade node in this part of the country. At present, the total road length in the district is about 270km. A number of feeder roads links the towns of Ghorahi and Tulsipur with surrounding small markets. Road coverage in terms of population and area in the district is 1,322 persons/km of road length and one kilometre to 11 square kilometres of total area. Out of a total of 40 VDCs, including two municipalities in Dang District, 15 VDCs have a regular bus service, and 13 VDCs have a bus service in the winter season. Nine VDCs have electricity, and telephone facilities are available only in four VDCs. There are altogether 245 primary, 71 secondary, and five higher secondary schools in the district. There are more than 77 extension education programmes run by NGOs such as the Backward Society Education Project (BASE) and Social Upgrading in Progress of Educational Region (SUPER). There are 15 health centres in the district. The distribution of services and infrastructure clearly indicates that the location of services and infrastructure was carried out without considering the advantage of agglomeration in market town development. If the services and infrastructure were located in the nodal points, i.e., market centres, the advantages accruing from agglomeration would have resulted in service provision to a larger population.

Dang District has altogether 1,060 settlements, 743 of which could be located on the map. About 336 settlements have some commercial functions. The settlements are mostly distributed along the Babai and the Rapti rivers and their tributaries (Map 6). The Mahabharat region in the north and the Siwaliks are relatively sparsely populated. In terms of population size, nearly 59 per cent of the settlements have populations of less than 200, nearly 40 per cent of the settlements have populations between 200-1,400 and only about seven settlements have populations above 1,400. Even the designated municipal areas consist of a number of discrete settlements. The urban population in the district is about 15 per cent, which is higher than the national average.

There has been considerable growth of market centres in the district in the last decade. In 1988/89, there were only 33 market centres, which increased to 336 in 1994. The rapid growth of market centres indicates the growing commercial activity in the district.

6. US$ 1.00 = NRs 49 in 1993


Map 6: Distribution of Settlements
in Dang District, Nepal
SALYAN
ROLPA
PYUTHAN
BANKE
INDIA
KAPILBASTU
ARGHAKHACHI
Padampur (355)
Khilatpur (960)
(22654) TULSIPUR
Bagar (504)
Babai River
Parseni (166)
Bijauri (478)
Dudras (808)
Manpur (871)
Hapur Bijauri (124)
Jaspur (324)
Narayanpur (374)
(29050) GHORAHI
Kalimati (219)
Saudiyar (426)
Rampur (327)
Murkute (392)
Amiliya
Jahari
Lamahi (2613)
Kalapani (597)
Chaite (68)
Bhaluwang (631)
Rapti River
Sisahaniya (698)
Lalmatiya (1127)
Gadawa (305)
Gobardiya (863)
Phoragaun
Koilabas (2832)
4 2 0 4 8 12 km
Scale
N
LEGEND
Settlements
Market Towns
Recognised Municipalities
International Boundary
District Boundary
East-West Highway
Unmetalled Road
Seasonal Road
Main Trails
River
(Circles are proportional to population)
DTTS, ICIMOD '96

Identification and Assessment of Market Towns

In Dang District, market centres were defined as **centres with at least 20 functional units and more than 10 commercial functions.**

Twenty-three market towns have more than 10 commercial functions and only seven have more than 20 functions in this district. Also, 19 market towns have more than seven types of functions and only two municipalities have more than 20 types of functions. Similarly, 15 market towns have more than 20 functional units and only four have more than 100 functional units. Market towns in almost all cases have been oriented by the development of transport, basically a road network.

In identifying the potential market towns to be assessed, several criteria were taken into account. These included the number, range, and trend in commercial functions; existing and planned infrastructure, population size and nodality, the resource base of the hinterland, and site and situational aspects. A total of 25 market towns were identified based on these criteria, giving a ratio of one market town in 42 settlements and 14,000 people (Map 7). In identifying potential market towns, the growth trend in the number and type of functions and the total number of functional units over time were also considered. These 25 market towns were grouped into three categories based on their growth trend: increasing, declining, and no change (Annex 4). Only nine market towns show an increase in the number of commercial units, type of function, and magnitude. Existing municipalities were not included, because these have their own methods of developing programmes and receiving loans and other forms of assistance. Among the nine market towns are Lamahi, Bhaluwang, Gadawa, Narayanpur, Kalimati, Manpur, Jaspur, Bijauri, and Murkute.

Road networks play a vital role in the growth and decline of market towns. New market towns emerge at the node and the break-of-bulk points created by the newly-opened road (Sharma 1989; Messerschmidt 1980) network, whereas market towns bypassed by them decline. Thus, a national and district master plan of road networks are imperatives for ascertaining the potentials of market towns.

The Policy Context

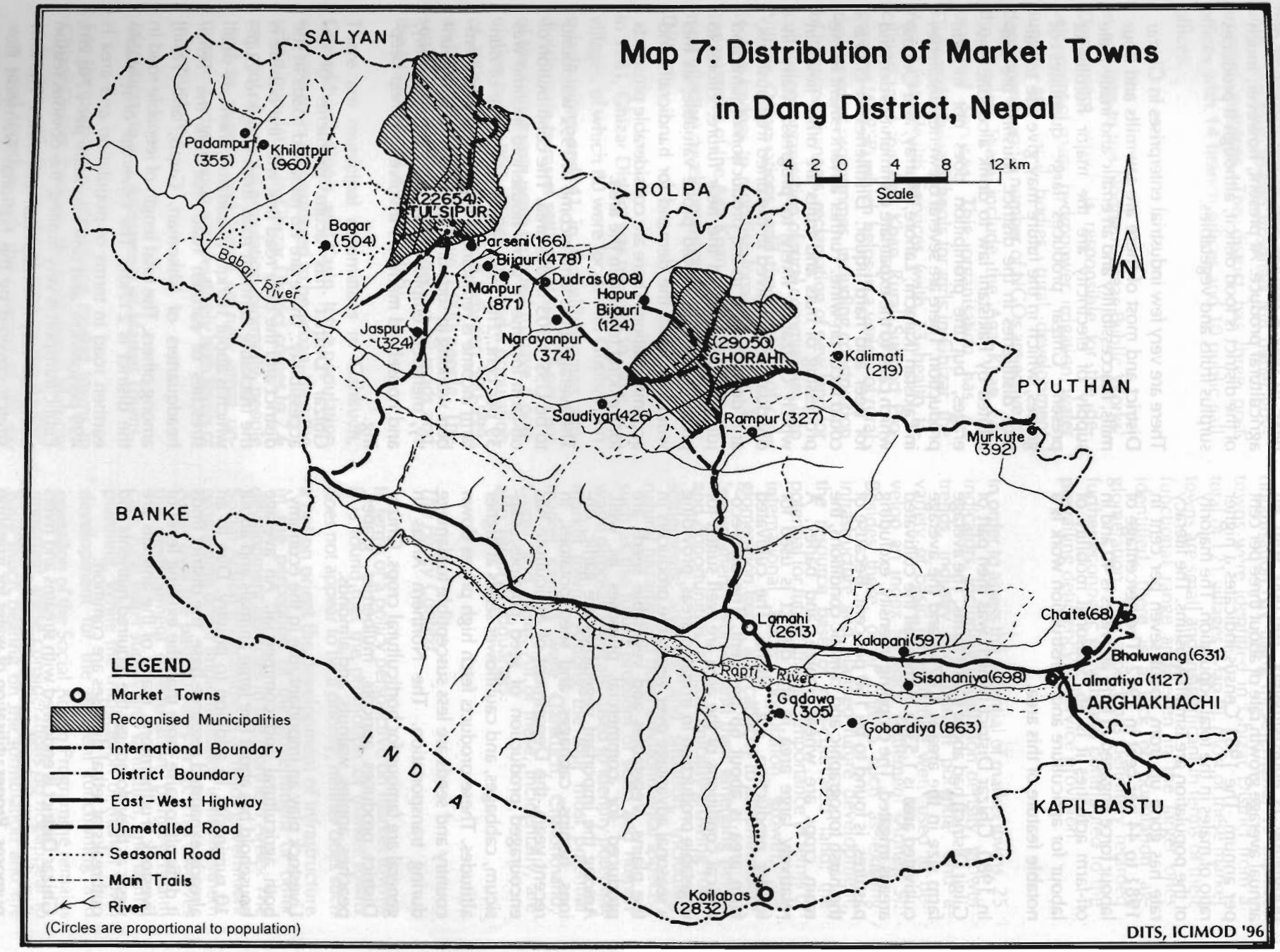
In terms of policies and programmes for market town development, although policy statements have been in existence since the Seventh Plan period (1985-90), government policies and programmes are focussed only on municipalities. Very few programme efforts that touch upon the problem of market towns have actually been made. The main issues in the development of market towns include lack of conceptual clarity about service centre programmes among policy-makers; the lack of an institutional set-up at the local government level for the planning and development of small market towns; lack of programmes for the infrastructural development of market towns; lack of a road transport plan to orient investment in potentially nodal market towns; lack of a database on small market towns; and the absence of institutional mechanism for financing market town development. Activities of institutions such as the Department of Housing and Urban Development (DHUD), Town Development Committee (TDC), Urban Development through Local Efforts (UDLE), Town Development Fund Board (TDFB), and Local and Urban Development Training Centre (LUTDC) are basically focussed on municipalities and support their activities through enhanced technical capabilities or through grants and loans. Small market towns do not have a legal basis as entities to claim or request the kind of support normally provided by these institutions. Therefore, there is a policy vacuum with respect to market towns.

Ghizar District, Northern Areas, Pakistan

Spatio-economic Profile

Ghizar District is part of the federally administered Northern Areas of Pakistan. It is located between latitudes 36°8' and 36°45'N and longitudes 72°41' and 74°10'E. The area of Ghizar District is around 5,760sq.km. From east to west, the district extends for about 170km and for 122km from north to south. The altitude of the district ranges from 1,600m to 5,775m. Physiographically, it is comprised of four valleys: Punial, Ishkoman, Gupis, and Yasin. All these valleys have a rugged landscape and are also fairly arid.

In climatic terms, the area lies beyond the influence of the monsoons. Precipitation in the form of snow or rain occurs between March and May and varies from about 126 to 133mm. The temperature extremes range from 40°C in summer in the lower valleys to -15 degrees at about 2,500m altitude in winter. The district is drained by three main rivers, namely, the Ghizar, Yasin, and Iskoman.


Map 7: Distribution of Market Towns
in Dang District, Nepal
SALYAN
ROLPA
PYUTHAN
BANKE
INDIA
ARGHAKHACHI
KAPILBASTU
Padampur (355)
Khilatpur (960)
(22654) TULSIPUR
Bagar (504)
Parseni (166)
Bijauri (478)
Dudras (808)
Manpur (871)
Hapur Bijauri (124)
Jaspur (324)
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Kalimati (219)
Saudiyar (426)
Rampur (327)
Murkute (392)
Babai River
Lamahi (2613)
Kalapani (597)
Chaite (68)
Bhaluwang (631)
Rapti River
Sisahaniya (698)
Lalmatiya (1127)
Gadawa (305)
Gobardiya (863)
Koilabas (2832)
4 2 0 4 8 12 km
Scale
N
LEGEND
Market Towns
Recognised Municipalities
International Boundary
District Boundary
East-West Highway
Unmetalled Road
Seasonal Road
Main Trails
River
(Circles are proportional to population)
DITS, ICIMOD '96

The total population of the district in 1981 was estimated to be around 72,000. The present population is approximately 108,000 with an annual average growth rate of about three per cent per annum. The 1981 Census indicates a higher ratio of males in the total population. The majority of the population are Ismaili Muslims. The literacy rate has gone up from about seven per cent in 1981 to 44 per cent in 1992. The percentage of labour force engaged in farm activities is 40 and in off-farm activities it is 46. Seasonal mobility of labour for agriculture and construction work is a notable feature of this area.

In 1980, Ghizar District (which was then part of Gilgit District) had about 6,718 farms. The average farm size in the area is 1.87ha and the average cultivated area is 1.53ha. Almost all the cultivated area is irrigated. The cropping intensity, excluding pastures, is found to be 160 per cent. Because of the harsh topographic and climatic conditions, the main crops are wheat, maize, and barley. A relatively large area in the district is used for fodder production, e.g., alfalfa. The cultivated farm area is about 68 per cent. The agro-ecological conditions of the area are well suited for vegetable production in irrigated areas, providing a seasonal advantage over vegetable producers in the plains. Vegetables and vegetable seeds are produced for commercial purposes as well. Among the important vegetables are garlic, onions, turnips, cabbages, and seed potatoes. In recent years, the Department of Agriculture has encouraged production of seed potatoes, capsicum, cabbages, and cauliflower seeds at higher altitudes. These products fetch high prices down country and seeds are less susceptible to damage during transportation. The Northern Areas in general are famous for horticultural crops. Ghizar District produces apricots, mulberries, grapes, peaches, apples, walnuts, and almonds.

Livestock play an important role in the economy, both agricultural and commercial. An average household has about five large animals and about 10 ruminants, in addition to poultry. Due to an already exhausted resource base, the district finds it difficult to raise more than the existing level of livestock. Furthermore, many of the animals are weak as they do not get the required nutrients and outbreaks of lethal diseases are common.

Ghizar District is endowed with streams and rivers that are snow fed and can be utilised for irrigation purposes. Proper utilisation of water for irrigation has the potential to substantially increase agricultural production as well as productivity. For the realisation of this potential, market towns will have to play a pivotal role in the marketing of agricultural produce. At present, however, much of the district is food deficit, although it produces surplus fruits and vegetables.

There are very few industrial enterprises in Ghizar District and most of these are sawmills and flour mills. Inaccessibility and an erratic and inadequate supply of electricity are the major hurdles at present. Ghizar produces large quantities of grapes, which in the future may give rise to various distilleries in the district. Muslims are prohibited by Pakistani law to drink alcoholic beverages, but the prohibition does not include production. There are several breweries/distilleries in Pakistan (Karachi, Lahore, Murray, and Quetta) which cater to the expatriate community's demand for beer and hard liquor. Distilleries in Ghizar could focus on wine. Further advancement in the processing of nuts and fruits are other fields in which Ghizar is likely to progress. Many individuals are involved in the dried fruit business, and development in the production of jams and juices is foreseen in the near future. Efforts to promote tourism would prove valuable, as this would increase the demand for handicrafts and accommodation. There are considerable prospects for trekking tourism in the area.

The average gross farm income in 1992 was found to be US$ 1,305 in this area. The contribution of off-farm income to gross household income was 39 per cent. The most important source of non-farm income is remittances from household members working in surrounding areas or down country, members employed by the Pakistani Army, and household members involved in shop keeping.

Ghizar District has acute problems of inaccessibility. There are no metalled roads in the district and the only road link with the outside is the truckable earthern road from Gilgit to Gupis which is about 107km. In addition, there are small stretches of earthen road that link the *Tehsil* headquarters of Ishkoman, Gupis, and Yasin, among others. The total length of jeepable road in the district is 217km. The coverage of jeepable earthen road in terms of population and area is 499 persons/km. and one kilometre per 27sq.km. Public transport is very limited; the obvious reason being that very few roads can take buses. The only stretch covered by the National Transport Corporation is Gilgit-Gahkuch. A major problem is

the number of bridges needed to link main settlements with roads and market towns. The district has 76 government schools, seven basic health units, and four 10-bed hospitals run under government auspices. The district has three post offices with 14 branch offices and 10 public call offices.

In addition to the Northern Areas Public Works' Department, which is responsible for the development of roads, hydropower, irrigation, water supply, etc, local bodies, rural development departments, and a number of NGOs are active in the district. These include the Aga Khan Educational Services. This organisation has 43 Diamond Jubilee Schools for girls in Ghizar, the Aga Khan Health Services (with 13 health facilities), and the Aga Khan Rural Support Programme (AKRSP) which helps in a variety of rural development programmes, including construction of irrigation channels, reclamation of new land for cultivation, organisation of rural communities into Village Organisations, and the creation of collective savings to mobilise local resources. The programmes of the Aga Khan Foundation are the most effective development programmes in Ghizar District.

In 1981, Ghizar District was reported to have 121 villages, of which 80 were located in Gupis/Yasin sub-divisions and 41 in Punial/Ishkoman subdivisions. In terms of settlement size, 25 per cent of the settlements were reported to have a population below 200, 40 per cent had a population of 200-499, 23 per cent had between 500-999, and 18 per cent had above 1,000 people. The settlements in Ghizar are oriented by roads and the availability of water (Map 8).

There are municipal committees in Gahkuch, Chatorkhand, Gupis, and Yasin. If the population of these areas is considered to be urban, then the urban population in Ghizar District comes to 7.6 per cent of the total population. Normally, people tend to migrate and locate in new areas undergoing urbanisation with relatively high levels of infrastructure.

Identification and Assessment of Market Towns

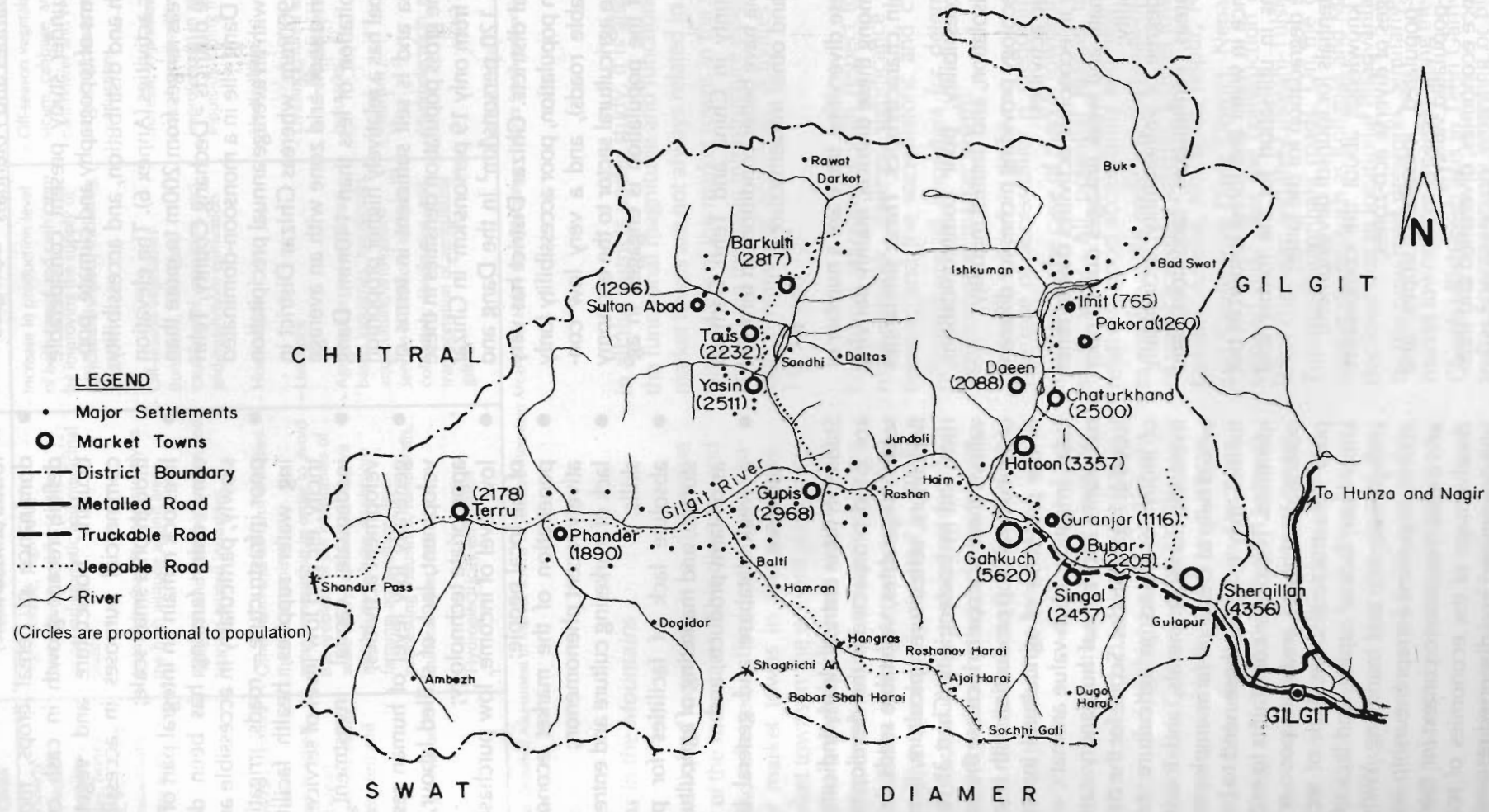
For the purpose of identifying market towns in Ghizar District, Pakistan, the Institutional Maturity Index for settlements, developed by the AKRSP, was used together with the criterion of the existence of at least 10 general stores. In addition to functional characteristics, the Institutional Maturity Index takes into account non-farm enterprises and skilled persons within the vicinity of the village organisation. By using these criteria, 17 market towns were identified in Ghizar District from a total of 121 villages (Map 9). Most of these market towns are small and insignificant in terms of their functional range and, even in the larger ones identified, there is a lack of population agglomeration. This aspect has definitely retarded further economic growth and contributed to the prevailing deficiency in service provision.

In order to assess the potential of market towns, 25 indicators, including population density, growth trends, industry and tourism potential, and a variety of basic infrastructure were used to develop an index for each settlement (Annex 5). Besides these, other criteria such as existing infrastructure and planned future development; the resource base of non-cultivated land; the potential for future strategic importance in terms of international trade; population growth, agglomeration trend, and capacity to accommodate 'newcomers'; women and their emerging needs and opportunities in economically-growing rural settlements; and site and situation, including natural hazards and other environmental aspects, such as the future problem of solid and human waste disposal, were also used to identify potential market towns. Among the four most potential market centres were Gahkuch, Chatorkhand, Gupis, and Yasin. All of these, incidentally, are also *Tehsil* headquarters.

The Policy Context

In terms of a policy perspective on market towns, it is found that the promotion of market towns does not appear to be a priority, neither does such a notion orient the development of infrastructure in the perception of the government or other development agencies in the Northern Areas. The Social Action Programme is a major government programme under implementation in the Northern Areas over the past 10 years or so. This involves the development of education, primary health care, rural water supply and sanitation, and family planning. While the implication of market town development for the efficient functioning and operation of the Social Action Programme remains important, these considerations do not appear to have much bearing on the formulation and the implementation of programmes.

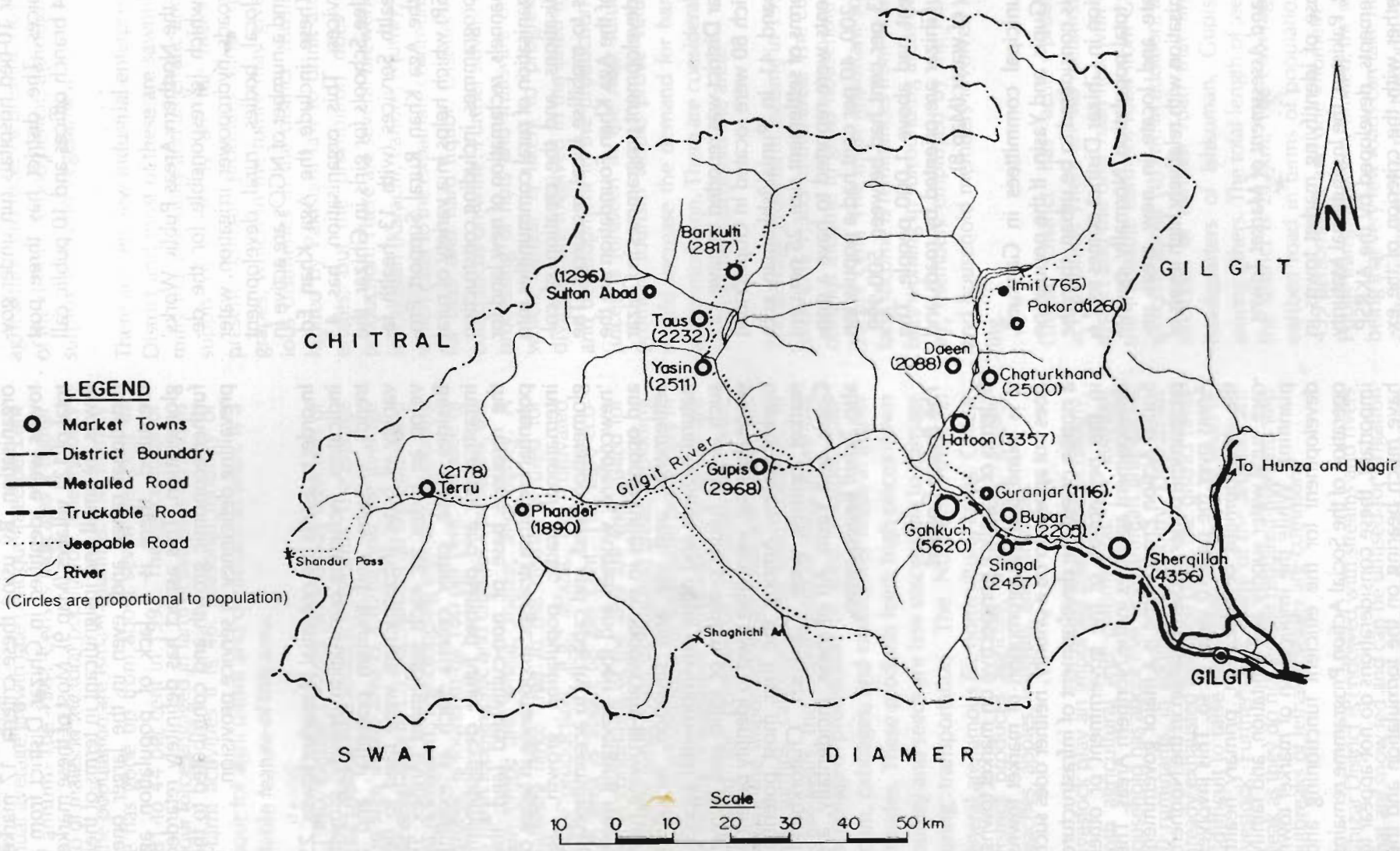
Map 8: Distribution of Major Settlements in Ghizar District, Northern Areas, Pakistan



Source: Atlas of Pakistan, Survey of Pakistan, 1985

DITS, ICIMOD '96

Map 9: Distribution of Market Towns in Ghizar District, Northern Areas, Pakistan



Source: Atlas of Pakistan, Survey of Pakistan, 1985

DITS, ICIMOD '96

A Comparative Perspective

Regional Similarities and Potentials

The districts under study present considerable diversity in terms of topography and climate, population growth and distribution, and accessibility and economic activities (Annex 6). The elevation of the study areas ranges from 200m to more than 5,000m. Three districts - Dechang County, Tehri Garhwal, and Dang - lie in a monsoon-dominated climatic zone with an average annual precipitation of more than 900mm, whereas Ghizar District in Pakistan lies in a semi-arid zone with an average annual precipitation of less than 140mm. Dang District in Nepal has a relatively higher proportion of plains' area and is self sufficient in terms of foodgrains. The gross population densities in these districts range from only 19 persons/km^2 in Ghizar to more than 120 persons/km^2 in the Dang and Tehri Garhwal districts. Ghizar District has very high growth in population, poor accessibility (only earthen jeepable roads), and a very low contribution of the agricultural sector to the economy (only 40% of the population is engaged in agriculture).

Dechang County in China and Tehri Garhwal District in India have better conditions in terms of accessibility and other infrastructure.

In spite of these diversities, there are a number of similarities among these districts, mainly deriving from mountain characteristics. These similarities are:

- poor accessibility, poor communications, general isolation, and limited mobility;
- diverse ecology providing niches for different economic activities;
- diversity in economic activities due to relief and climate and weak linkages due to poor accessibility;
- a high degree of vulnerability, tectonically active areas, earthquakes, landslides, and floods;
- abundance in water and forest resources but problems in utilisation for the former and resource degradation for the latter;
- high potentials for tourism development;
- limited knowledge about the comparative advantages of diverse eco-zones;
- sparsely-populated mountain slopes and densely-populated valleys;
- subsistence economies, diversified and interlinked activities, fragmented landholdings, low levels of specialisation;
- diversification as the traditional strategy for mitigating natural hazards and lack of any forms of insurance;
- dominance of cereal crops, mostly food deficit, recent growth in cash crops, particularly horticulture and vegetables for commercial purposes in accessible areas, though on a small scale;
- livestock remain an integral part of the economy, dairy farming has been developing slowly, particularly in accessible areas;
- poor infrastructure – roads, irrigation, drinking water supplies, health facilities, electricity, etc and low level of services;
- inadequate capital investment for development activities;
- generally low level of human resource development, lack of skilled labour, and little appropriate technology;
- low level of income, low purchasing power of the local people;
- penetration of the market economy a relatively recent phenomenon;
- lack of marketing culture and entrepreneurial skills;
- absolute lack of facilities for processing, storage, and marketing of agricultural as well as off-farm products; and
- a weak database and general lack of institutions.

Studies in these districts clearly indicate that there are good prospects for the development of off-season vegetables, vegetable seeds, horticulture, floriculture, sericulture, apiculture, livestock, tourism, and hydroelectricity (Chart 3). In the lower valleys, there is scope to increase the present level of agricultural crop production with improvements in the provision of agricultural inputs, in particular, irrigation. High-value aromatic and medicinal plants and animal husbandry can be developed at high altitudes. Scope for the development of industries based on agriculture, horticulture, livestock, forest, minerals, and tourism, which would help to create off-farm employment opportunities, may exist but these need to be discretely identified. The major constraints to exploiting the potentials of these areas are poor accessibility, poor infrastructural base, lack of technological know-how, lack of capital, and lack of organised entrepreneurship and marketing. With improved access, organised entrepreneurship and markets, and a spatio-economic context for marketing, the disadvantage of the economies of scale, due to highly scattered and dispersed resources in these mountain areas, can perhaps be avoided.

Chart 3: Development Potentials in the Districts under Study

Dechang, China	Tehri Garhwal, India	Dang, Nepal	Ghizar, Pakistan
- Cash crops, particularly sugarcane and off-season vegetables, in the valleys, horticulture (apples, honey, peaches, oranges, etc) in the low and middle mountains and livestock in the high mountain areas - Sericulture - Expansion of minerals (cement and ferroalloys), forests (wood, paper, and matches) and agro-based (sugar) industries and agro-processing plants (fruit, vegetables) and handicrafts - Hydroelectricity generation	- High-altitude, high-value horticultural and floricultural crops and aromatic and medicinal plants - Animal husbandry, particularly in the high altitude alpine areas - Religious and trekking tourism and tourism-related industries - Other farm and off-farm activities through organised entrepreneurship in order to avoid the problem of the economies of scale (dairy, apiculture, Angora rabbits, sericulture, mushroom farming, aquaculture, agro-processing industries, handicrafts, mineral water, etc) - Hydroelectricity generation	- Increase in production level of both cereal and cash crops by improving the supply of agricultural inputs, including irrigation - Off-season vegetables (tomatoes, cabbages, cauliflowers, capsicum, etc) and mushroom cultivation - Horticulture - Livestock - Agro-processing and forest-based industries, handicrafts, aquaculture, and other service institutions such as collection, distribution, and transportation of agricultural goods	- Off-season vegetables (capsicum, cabbage, and cauliflower and vegetable including potato seed production - Increase in production of cereal crops with improvement in agricultural inputs including irrigation - Horticulture - Livestock, forest and mineral-based small-scale industries - Tourism - Hydroelectricity generation

Source: Action Oriented Assessment of Market Towns in Selected Mountain Areas of the Hindu Kush-Himalayas - District Spatio-economic Profile Reports

Market Towns in the Mountains

The commonality of contrasts is a distinctive characteristic of the mountains. This diversity and contrast are also reflected in the location and characteristics of market towns in the mountains. Although market towns in the present study have been defined in a slightly different way in each country context, the diversity and contrast in the location and attributes of market towns are evident in the comparative summary presented in Table 3.1. The roles of accessibility, population density, and the productivity of the hinterland emerge very strongly in the distribution and functional attributes of market towns in the mountains.

Table 3.1 shows that the ratio of market towns to settlements is the lowest (1:7) in remote Ghizar in Northern Pakistan, and the highest in the relatively densely-settled Tehri Garhwal (1:122). The average population served by a market town ranges from 6,000 in Ghizar to 7,000 in Dechang, 14,000 in Dang, and 36,000 in Tehri Garhwal. The size of the hinterland on an average ranges from 339sq.km. in Ghizar, 276sq.km. in Tehri Garhwal, 118sq.km. in Dang, and 99sq.km. in Dechang. It may be noted that the size of the hinterland is influenced more by the area of the district than the process of population distribution.

Although some basic pattern of settlement agglomeration is evident in terms of population size in all the districts under study, it is also seen that the functional magnitude and functional range of market towns are not always related in the mountains. Many of the market towns in the study areas are lacking the basic infrastructure essential for the agglomeration of economic activities (Maps 10, 11, 12, and 13).

Locational advantages with respect to a trail or road network, strategic significance of the settlement, and the sociohistoric and cultural significance are all important for determining the significance of market towns.

The role of accessibility is predominant as evidenced in the case of market towns in almost all study areas. All potential market towns have relatively good accessibility and new towns tend to emerge at the node and the break-of-bulk points of major transport arteries. Market towns, such as Lamahi, Amelia, Khilatpur, Jaspur, Narayanpur, and Saudiyar in Dang District, Nepal, were developed only after the construction of the East-West Highway and the Ghorahi-Tulsipur and the Tulsipur-Purandhara roads. On the other hand, market towns, such as Koilabas and Manpur, have declined due to locational disadvantages created by the new road networks. Similarly, many new market towns have emerged along the Mussoorie-Chamba-Rishikesh axis in Tehri Garhwal District, India. Spontaneously emerging or planned road networks may be the single, most important

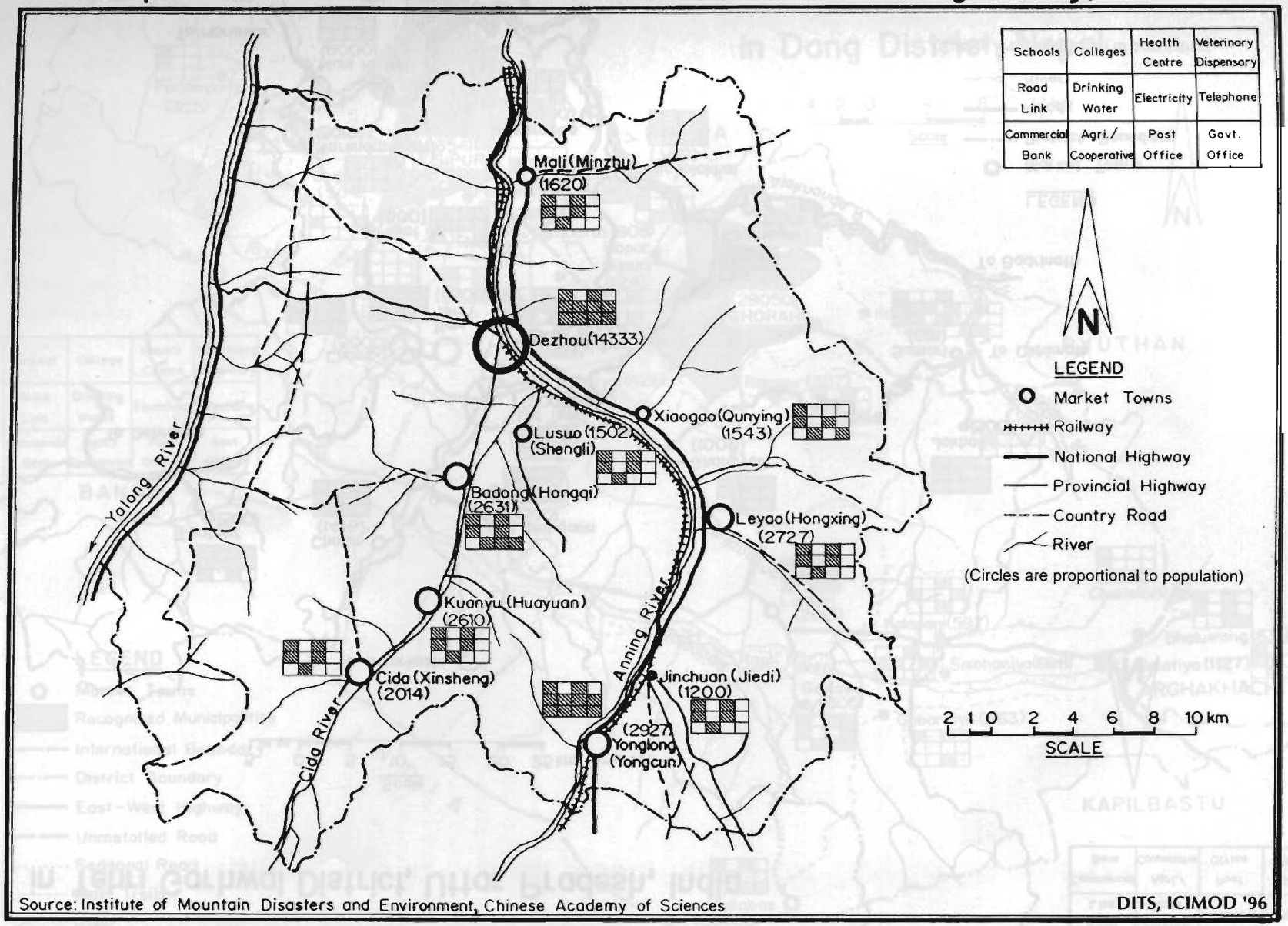
Table 3.1 Settlements and Market Towns: A Comparative Perspective

Characteristics	Dechang, China	Tehri Garhwal, India	Dang, Nepal	Ghizar, Pakistan
Total number of settlements	337	1938	1060	121
Percentage of settlements with populations of less than 200	78	47	59	25
Percentage of settlements with populations between 200-999		51	40	57
Percentage of settlements with populations greater than 1000	22	2	1	18
Percentage of settlements with central or commercial functions	23 (township)	7 (central places)	32 (commercial centres)	
Number of market towns	23	16	25	17
Ratio of market towns to settlements	1: 15	1: 122	1: 42	1: 7
Average population size per market town	7,000	36,000	14,000	6,000
Average size of hinterland (km^2)	99	276	118	339
Accessibility	Out of a total of 23 townships, 87 per cent have a highway passing through.	Out of a total of 1,938 villages, 13 per cent have roads passing by, 53 per cent have roads within 5km.	Out of a total of 40 VDCs, 38 per cent of VDCs have a regular bus service, 32 per cent have a seasonal bus service, and 30 per cent do not have such facilities	No highway, only a jeepable road

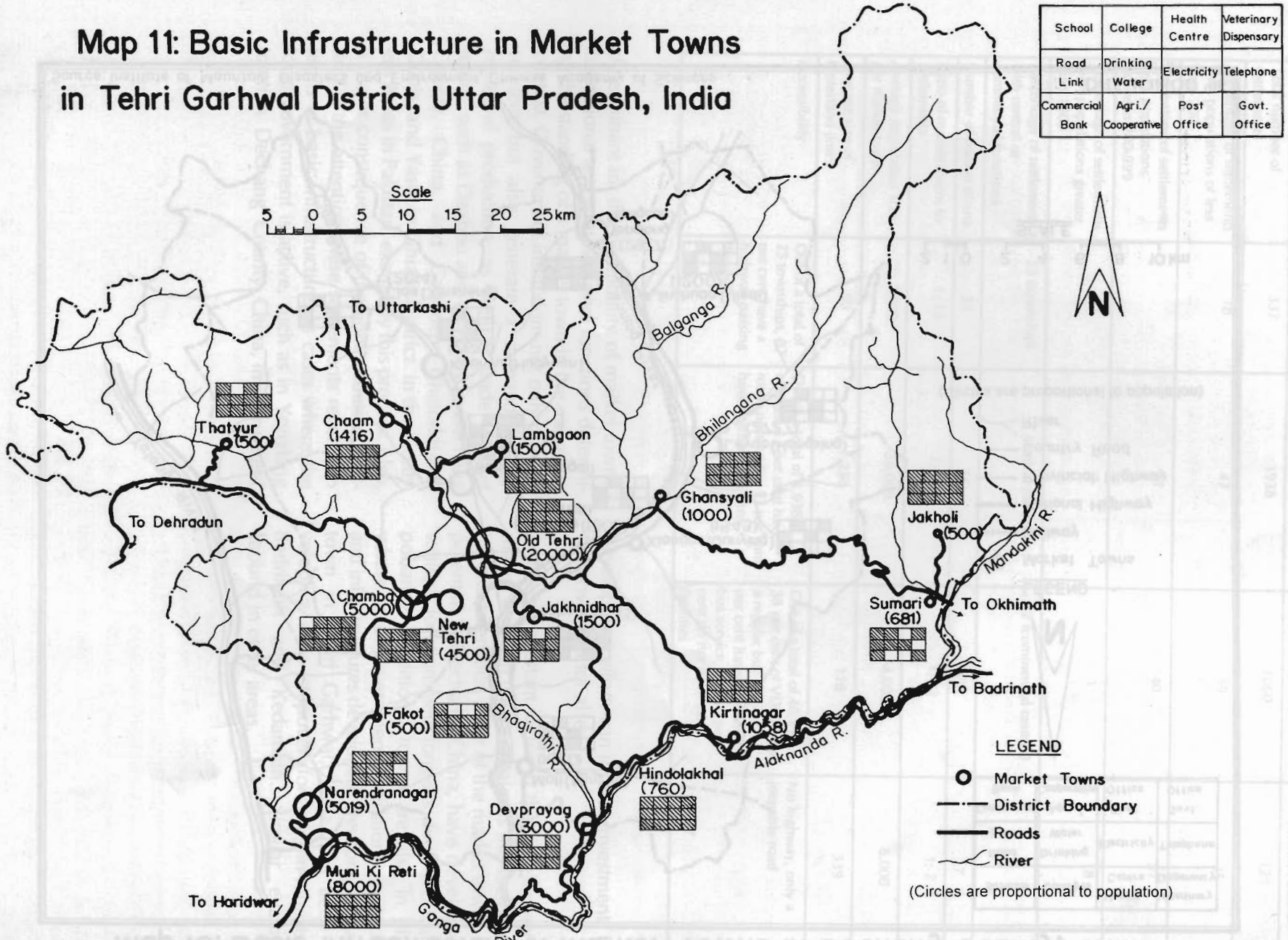
determinant for the potentiality of market towns. Institutional and administrative functions determine the standing of a market town in the mountain context. Government institutions not only provide services but also generate a demand for agricultural production, as well as trade. Market towns, such as Dezhou and Yonglang in Dechang County, China, and Gahkuch, Chatorkhand, Gupis, and Yasin in Ghizar District in the Northern Areas in Pakistan, exemplify this process. Also, a major consequence of the administrative function is the attention these settlements receive in terms of basic infrastructure. In cases where the local government is active, such as in Yonglang town in Dechang County, China, infrastructural development efforts can induce investments from the private sector also.

Another important factor in the development of market towns in the mountains is the sociohistorical characteristics. Most of the market towns with potential in Dechang, China, have developed in strategic locations with long-standing historical importance. Traditional towns are also in places where local government institutions are located and infrastructures developed. Deveprayag market town in Tehri Garhwal, India, has been developing as a stopover for pilgrim-tourists to Badrinath and Kedarnath. Similar examples abound in other areas.

Map 10: Basic Infrastructure in Market Towns in Dechang County, China

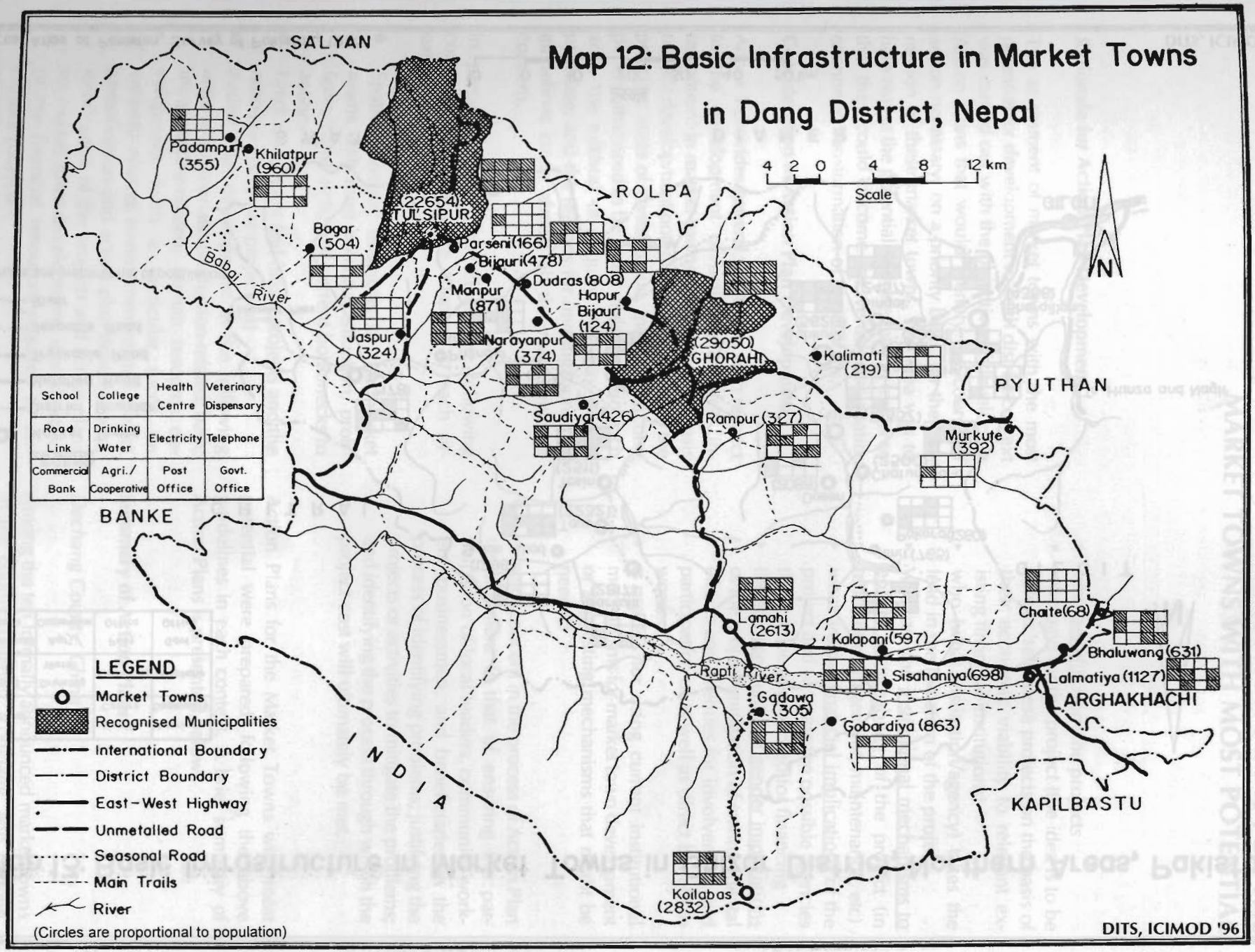


Map 11: Basic Infrastructure in Market Towns in Tehri Garhwal District, Uttar Pradesh, India



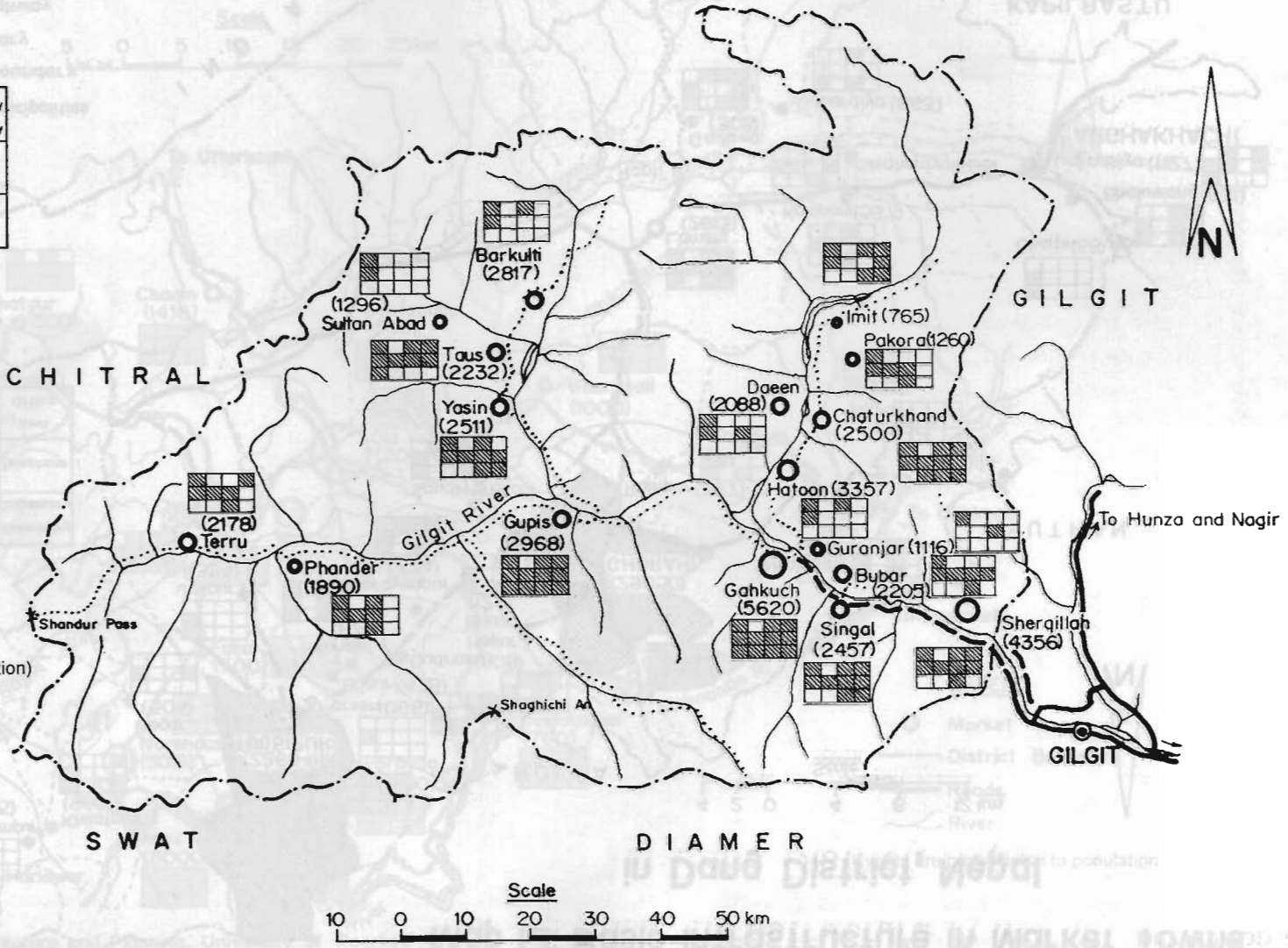
Source: Department of Architecture and Planning, University of Roorkee

DITS, ICIMOD '96


Map 12: Basic Infrastructure in Market Towns in Dang District, Nepal
SALYAN
ROLPA
PYUTHAN
BANKE
INDIA
KAPILBASTU
ARGHAKHACHI
Padampur (355)
Khilatpur (960)
(22654) TULSIPUR
Bagar (504)
Babai River
Parseni (166)
Bijauri (478)
Manpur (871)
Dudras (808)
Hapur Bijauri (124)
Jaspur (324)
Narayanpur (374)
(29050) GHORAHI
Kalimati (219)
Saudiyar (426)
Rampur (327)
Murkute (392)
Lamahi (2613)
Kalapani (597)
Chaite (68)
Bhaluwang (631)
Rapti River
Sisahaniya (698)
Lalmatiya (1127)
Gadawa (305)
Gobardiya (863)
Koilabas (2832)
4 2 0 4 8 12 km
Scale
N
School | College | Health Centre | Veterinary Dispensary
Road Link | Drinking Water | Electricity | Telephone
Commercial Bank | Agri./ Cooperative | Post Office | Govt. Office
LEGEND
Market Towns
Recognised Municipalities
International Boundary
District Boundary
East-West Highway
Unmetalled Road
Seasonal Road
Main Trails
River
(Circles are proportional to population)
DITS, ICIMOD '96

Map 13: Basic Infrastructure in Market Towns in Ghizar District, Northern Areas, Pakistan

School	College	Health Centre	Veterinary Dispensary
Road Link	Drinking Water	Electricity	Telephone
Commercial Bank	Agri./ Cooperative	Post Office	Govt. Office



LEGEND

- Market Towns
- District Boundary
- Metalled Road
- Truckable Road
- Jeepable Road
- River

(Circles are proportional to population)

Scale

10 0 10 20 30 40 50 km

Source: Atlas of Pakistan, Survey of Pakistan, 1985

DITS, ICIMOD '96

4 RECOMMENDED ACTION PLANS FOR THE MARKET TOWNS WITH MOST POTENTIAL

Rationale for Action Plan Development

The assessment of market towns with the most potential for development in each district context was carried out with the objective of developing Action Plans that would identify the course of action necessary, on a priority basis, for the promotion of these market towns. The idea was to help realise the potential of these market towns so that they could become the vehicle for spatio-economic transformation of the districts.

Consideration in Action Plan Development

Annex 1 provides general guidelines with respect to the development of action plans for 'intervention' in market towns selected on the basis of their development potential. It also indicates the principal areas of investigation, the specific components that need to be better understood in each area, the method of enquiry that may be appropriate, and the reasons for investigation. The guidelines cover almost all the main areas of concern.

In preparing the Action Plans, the following concerns/guidelines were adapted to each situation and context.

- Spatio-economic diagnosis of the market towns with most potential (situation, problems, constraints, and current bottlenecks to action)
- Land use (present and future projects and the rationale for future projection)
- Action Plan development in the following areas as appropriate: production-related; basic infrastructure-related; human resource development (with a particular focus on women) related; environment-related project identification and action plan development; justification of the projects and action plans for market town development; identification of the financial resources required to undertake projects
- Identification of the following with respect to each major project:
  - who benefits from the projects
  - who pays for the project (the idea is to be able to 'sell' these projects on the basis of their economic viability to relevant existing financial institutions)
  - who (what institution/agency) takes the lead in the initiation of the project
  - what are the institutional mechanisms to ensure sustainability of the project (in terms of management, maintenance, etc)
  - what are the financial implications of the project and what are the possible agencies that can be approached for financing
  - the environment and gender implications of the project (mitigation of environmental effects and avenues for involvement and participation of as well as direct benefit to women)
  - a process for using current institutional mechanisms for market town development or suggesting mechanisms that might be needed
- A major concern in the process of Action Plan development is that of ensuring the participation of local leaders, community workers, businessmen, and beneficiaries in the process of identifying problems; justifying the projects or activities to mitigate the problems; and identifying the process through which the project cost will ultimately be met.

Action Plans for the Market Towns with most potential were prepared, following the above guidelines in each context. A brief summary of Action Plans is presented below.

Summary of Action Plans

Dechang County, China

Among the ten formally announced market towns in the county, Dezhou, Yonglang, and Badong were found to be the market towns with the most potential in Dechang County.

A) **Dezhou**

Dezhou is one among 2,171 county towns in China and is located in the middle of the Anning River Valley. It is located between two large cities; Xichang, the capital city of Liangshai Yi Nationality Autonomous Prefecture about 55km away to the north, and Panzhihua about 100km to the south. The population of Dezhou was 36,278 in 1992, nearly 64 per cent of which was comprised of rural population with agricultural IDs. It is a third grade[7] town in the city and town system of the Panzhihua-Xichang region. The general characteristics of the *county towns* in China are: 1) they are the largest centrally-located towns in the county territories; 2) they are multi-functional towns and have a long background as historical, political, economic, and cultural centres of the county; 3) they manifest both urban and rural characteristics; and 4) they are administrative centres that play leading roles in the overall development of both urban and rural areas.

The town itself covers an area of 178ha, with a population of 14,300. The town has 1,000 households engaged in commercial activities. Nearly 50 per cent of these households are engaged in general stores and shops.

There are altogether 731 commercial units employing 1,309 people in the town. There is also an agricultural product exchange market. It opens every day for trading (retail and wholesale) and involves several hundred people each day.

The main sources of town income are industrial and commercial taxes. They account for nearly 1.2 million *yuan* per year. Agricultural tax accounts for about 600,000 *yuan* and the others, mainly fines, account for about 300,000 *yuan* per year.

One of the specific characteristics of Dezhou is that it is better connected with areas outside the county than with areas within the county. The existence of the agricultural products' exchange market evidences the fact that Dezhou acts as the hub of the agricultural economy of the region. Comparatively speaking, growth in the secondary and tertiary sectors is slower than in the agricultural sector.

The town itself suffers from poor infrastructure, which results in a low level of per capita income. Women's involvement in secondary and tertiary activities remains limited.

The annual population growth rate in Dezhou at present is more than four per cent per annum, which is a relatively rapid rate of growth for a county town. It is expected to reach six per cent before the year 2000. Keeping in mind this high rate of population growth in the area, it has to improve its infrastructure as well as its socioeconomic conditions. There is scope for further deve-lopment of the metallurgical industry, food industry, rural industry, and tertiary sectors in the town and agricultural products, mainly rice, wheat, cash vegetables, sugarcane, fruit, and livestock products, in the rural areas. In order to raise the standard of living, further improvements have to be made in the existing drinking water supplies, drainage and sewage disposal systems, electricity supply, gas supply, and postal and telecommunication systems. The main constraints to meeting these development expectations in Dezhou are as follow.

- Limited capacity for revenue generation due to low level of per capita income
- Lack of rural enterprises and slow development of the industrial sector
- Growing labour force but shortage of skilled labour
- Heavy losses in state-owned enterprises which have to be subsidised at the cost of other productive investments
- Limited financial institutions with the capacity to invest in infrastructural development
- Limited specialisation/commercialisation in agriculture
- Lack of sufficient financial support from the government
- Lack of integrated market town development strategies and policies and institutions that deal with these concerns

In recent years, the promotion of industrial growth has been a major priority of the county government. The county government has identified a number of projects deemed necessary for the further development of Dezhou town. It has proposed the establishment of new industries and companies ranging from a silk plant, steel rolling mill, silica plant, carbon product plant, rare-earth element alloy mill, magnesium brick, and tour services' enterprises. Public infrastructure projects include construction of a stadium, library, recreation facilities for children and teenagers, and a scientific and technological hall. Other projects identified by the county government were the extension and maintenance of road and railway

7. The city and town system of the Panzhihua-Xichang Region is classified into four grades

networks, telecommunications, drainage, and construction of parks and a green belt.

Almost all the projects identified by the county government are necessary for the further development of the town. Keeping in mind the present investment capability of the county government, it is doubtful whether all the projects can be undertaken at the same time. Prioritisation is necessary for the successful completion of projects. It is in this context that the study teams, in consultation with local bodies and community groups, formulated new projects that can contribute to the town economy. These new projects are expected to be financially viable and self-supporting with obvious socioeconomic benefits for the community and the county at large. Further, the projects are not expected to degrade the quality of the environment. A brief description of these projects is given below.

1) Food Processing. Dezhou is rich in agricultural resources, and it produces large volumes of good quality fruits, vegetables, and edible fungi. At present, there is only one small food processing plant. Most of the agricultural products are sold at low prices. Therefore, it is recommended that: (i) a new fruit processing plant be established; (ii) the existing wheat flour mill, which is part of the food processing factory, be expanded; (iii) the existing pig slaughterhouse be rebuilt and expanded with the addition of a new 40-tonne capacity refrigerator; and (iv) a new grain market be built to facilitate the exchange and sale of foodgrains. The total estimated cost of these activities is 3.4 million *yuan*. These activities will help to increase profits and taxes amounting to one million *yuan* per year and will create employment for over 100 people as well as increase farmers' income. The funding source is the already existing food processing factory (one million *yuan*). Funds can also be raised from the farmers themselves (1.4 million *yuan*) and from low-rate agricultural bank loans (one million *yuan*).
2) Cement Plant. The county has tens of millions of tonnes of high grade limestone deposits. This is enough to run a cement plant with a capacity of 0.3 million tonnes per year. The produce can easily be transported by the Chengdu-Kunming Railway or along the No 806 National Road. There is a 10KV transformer to supply electricity and a lot of labour is available for relatively low wages. The estimated total cost is 50 million *yuan*. The output would be nearly 20 million *yuan* per year with a net profit of two million *yuan*. It will provide employment to 300 people. The main source of funds will be loans from the Construction Bank, the joint stock of the county inhabitants, investment from the cement plant, and cooperation from other counties.
3) Metallurgical Mill. At present there is a ferroalloy mill producing ten thousand tonnes of iron alloy a year. Raw iron ore is available from the county iron mine which has a deposit of ten million tonnes. Besides, there are several silicon mines with deposits of tens of million tonnes. The ferroalloy mill has been connected to the iron mine and the silicon mines by railways and highways. It has been recommended that the rated capacity of the electric stoves be expanded from 2x1,800KVA to 2x3,200KVA and that two new electric stoves with a capacity of 2x5,000KVA be installed. After the completion of the proposed activities, the output of alloy steel will increase from ten thousand tonnes to forty thousand tonnes a year, and its value will increase from 231 million to 800 million *yuan*. It will provide employment for 500 people. The estimated cost is 15 million *yuan* and the funding source could be the ferroalloy mill itself.
4) Training Centre. It has been recommended that a Silkworm Technical Training Centre with a capacity for training 150 participants be established. Farmers from around who are taking up sericulture as an off-farm activity will greatly benefit from the Training Centre. The required investment is one million *yuan*. The source of funding could be the county government.
5) Others. Other projects identified in order to improve the infrastructure in Dezhou, which will also help to develop tertiary activities, are construction of a new bus park, extension of old bus stations, construction of new housing, construction of a supermarket, hotel, grain market, agricultural and by-product market, national stadium, small parks, and 15 new retail departments. The total estimated cost of these activities is 12.2 million *yuan*.

B) **Yonglang**

Yonglang falls in Yonglang township which is located in the southern part of Dechang County.

It is located about 30km south of Dezhou, the county town. The total population of the township was 8,135 in 1993. The average annual growth rate between 1982 and 1990 was 1.5 per cent and between 1990 and 1993, 2.2 per cent. Many people, though living in the town, were engaged in farming. About 56 per cent of the total population in the town had agricultural IDs. Besides these, some 200 to 300 people have immigrated from other counties, such as Huili and Huidong, to run their businesses. Nearly 68 per cent of the total population above the age of six were literate. However, women had fewer opportunities for higher education and employment. More than 75 per cent of the total labour force were engaged in agriculture, and this figure was lower than the county average.

The township is relatively small, both in terms of area and population, but has the advantages of location and accessibility. It is located at the nodal point of three counties. The Chengdu-Kunming railway and Highway 108 pass through the town and there is also one railway station.

Compared to other townships, its resource base, both in terms of agriculture and minerals, is very limited. The per capita cultivated land is only 0.043 ha. It has to import grains every year. There is one prefecture-run silica mine and a township-run kaolin mine. Sugarcane is produced as a cash crop in Yonglang township, and it provides the material base for the sugar refinery in Dechang.

Yonglang is the second largest market town in Dechang County. The town has a total area of 7.82 ha with an elementary school, a high school, a nursery school, a post office, a cinema, a bank, a grain store, a marketing cooperative, a hospital, and government offices. The Urban Construction Bureau of Dechang County has built a market square and street. On market day, nearly 5,000 people visit the market to trade their farm products, handicrafts, firewood, and general groceries and on traditional holidays more than 10,000 people visit the market. Other roads with regional importance radiate from this market to other counties, namely Huidong and Huili, which are rich in mineral resources such as lead and zinc. These mineral products, along with other agricultural and forest products from these counties, are brought to Yonglang railway station to export to other areas. Similarly, manufacturing goods are brought first to Yonglang and transported to these areas. Hence, Yonglang is a major bulking and distribution centre.

The financial resources for the development of this market town can be raised jointly by the county government, township government, and private investors. The market square and market street were successfully built with the active participation of private investors in 1992 and 1993.

It is evident that Yonglang has been playing an important role in transferring, collecting, and distributing goods and services in the region. So it has a lot of potential for the development of secondary and tertiary sectors such as transport companies, wholesale businesses, handicrafts, food processing industries, and service industries.

The main constraints to exploiting the potentials of this market are shortage of power (electricity) and drinking water, poor communications, and shortage of development funds.

The following are the market town development projects that were identified after discussions with the local authorities and private dealers.

1) Electricity. Yonglang does not have its own power station and has to import power from outside. Industrial development in Yonglang has suffered mainly because of the lack of power. The existing transformer does not have sufficient capacity to fulfill the present needs. Thus, it has been recommended to install a new transformer with a larger capacity. The estimated total cost is 0.2 million *yuan*, and the probable investors are the township government and the county's Electric Power Company.
2) Water Supply. The demand for water at present is high, but the supply system capacity is limited to 2,000 persons per day only. It is recommended that the present water supply system be expanded. The estimated total cost of this project is 0.11 million *yuan* and the probable investor would be the township government.
3) Communication. A quick and prompt communication system is important for Yonglang town where trading, bulking, and distribution are the most important activities. With approximately 0.3 million *yuan*, Yonglang can utilise the communication cables and can be equipped with a modern communication system. Probable investors for this project would be the township government and private dealers.
4) Cement plant. This area is rich in limestone. It has been recommended that a cement plant

be installed on the west bank of Anning River; the cost of this is about 200 million *yuan*, and this includes the cost of the bridge over the river.

C) Badong

Badong town, the centre of Badong township, is located on the lower reaches of Cida River. It is 13km from the county town, Dezhou. The highway from Dechang County to Yabin County passes through this town. Strategically located as it is, Badong has been playing an important role in the economy of Cida Valley.

Badong township has an area of 119sq.km. with a total population of 8,321. The population growth rate is high. About 57 per cent of the Badong township population are literate with a literacy level above the primary level.

Badong market town itself is small, covering about 50ha, with a population of about 2,500. Agriculture is the main economic activity in Badong. Nearly 95 per cent of the total labour force are engaged in agricultural activities. In recent years, rural industries, such as food processing, papermaking, ore dressing, and bricks, have been developing rapidly. There are about 121 enterprises employing 246 persons. Privately-owned enterprises have been increasing rapidly compared to state-owned and collectively-owned enterprises and their turnover is also increasing day by day.

Badong town has service institutions such as a primary school, senior middle school, junior middle school, hospital, and a grain shop run by the government.

Though the importance of Cida Valley decreased after the construction of the Chengdu-Kunming railway and Highway 108, Badong town has been developing slowly as a local market place typical of Chinese mountain areas. Trading is confined to local agricultural goods. In the past, between 1949 and 1979, it was also an administrative centre.

The major constraint to developing market towns like Badong is the total lack of knowledge among government officials about the role of market towns in the development of the rural economy, on the one hand, and the lack of the experience of a market economy among rural farmers on the other. The township government pays more attention to agricultural and industrial development and less to social services. It has not yet been realised that brisk business through organised trading can help to promote the rural economy.

The absolute lack of integrated physical, economic, and social development planning, the township government's lack of financial resources, and very poor infrastructural development are the other major constraints in the further development of this market town.

After consulting and interviewing the concerned officials and community groups, the following projects have been identified for further development of Badong town. As regards financing, the county government and Badong's growing private traders could supplement low interest loans from the existing financial institutions.

1) Physical Development Plan. The unplanned growth of Badong market town has been creating problems of traffic congestion and other socioeconomic and environmental problems. A physical development plan with clear environmental guidelines needs, therefore, to be formulated and implemented.

2) Water Supply and Drainage. At present, people are using water directly from the Hongqi River, which is contaminated by the wastage of pulp mills located in the upper reaches, without any treatment. It has been recommended that a water treatment plant be installed in order to purify the drinking water and also to reduce the level of pollution in the river. Construction of street drains would help to create a healthy environment in the town.

3) Expansion of Power. At present, Badong market uses electricity from the Hongqi hydroelectric plant which has a capacity of 320kW; and this is not enough for further growth. Therefore, expansion in power supply becomes a priority.

Tehri Garhwal District, India

In Tehri Garhwal District, the Mussoorie-Chamba-Rishikesh Axis was assessed as the axis with the most potential for the promotion of market towns. Among the settlements in this axis, New Tehri, Chamba, and Thatyur were assessed to be relatively important.

A) **New Tehri Township**

What started as a resettlement township for the to-be-submerged Tehri Town is now the administrative headquarters of Tehri Garhwal District. Strategically located on the slopes of the mountain, it includes within its area half a dozen villages. The construction of the township, which is still going on, has been simultaneous with the construction of a network of new roads around it. It covers an area of 10.27sq.km, one third of which is to be conserved as a green belt. The population in 1991 was 4,494 and is estimated to be around 5,000 at present. Functionally an administrative town, it has more than 50 government offices/institutions.

The township consists of more than 180 functional units but does not have much scope for becoming a regional trade centre like old Tehri town. It offers excellent potential for development into a tourist town - an alternative to Mussoorie. Some specialised non-polluting industries could also be set up in New Tehri Township considering its infrastructural and institutional base.

The main problems of the town, as revealed in a random household survey, and ranked in order, are: water scarcity (in summer), erratic power supplies, very cold winters, inadequate market, and fuel shortage.

B) **Chamba**

Chamba is a town situated mostly on a ridge with little flat land available for expansion. Its location is very strategic, being at the junction of two major transportation routes, one between Mussoorie and the New Tehri Township and the other connecting Rishikesh with Tehri (old) and Uttarkashi.

The population was less than 5,000 in 1991, but an additional area was included when Chamba was brought under a Notified Area Committee in 1992. The present population, within the notified area of seven square kilometres, is a little over 10,000. The number of commercial units has increased from only 74 in 1971 to 260 in 1994. Chamba was notified as a *Nagar Panchayat* in June 1994. The upgrading and enlargement of Chamba *Nagar Panchayat*'s jurisdiction has rendered the land-use planning proposals made in 1989 somewhat redundant.

Problems of development in Chamba include inadequate drainage/sanitation, inadequate water supplies, poor power supply, lack of employment opportunities, inadequate educational facilities, poor garbage clearance, inadequate market, and absence of community facilities.

The principal development problems result from its difficult terrain and scarcity of land suitable for development for a growing population and its activities. As a market town, it also lacks storage facilities, parking space, accommodation, and communication facilities.

C) **Thatyur**

Thatyur is the headquarters of the Jaunpur Block. About 10,000MT of vegetables and fruits are exported from Aglar Valley, where Thatyur is situated, to Mussoorie, Dehradun, and beyond every year. Though the volume of trade and the potential for improvement are enormous, the town, with a population of around 600, is badly in need of even the most basic infrastructure and facilities essential for market development. The main development problems of Thatyur are: poor road connections between Thatyur and Suavakholi and Thatyur and beyond; inadequate transport services; a highly erratic power supply; insufficient water supply; lack of civic amenities; lack of telecommunication facilities; accommodation for visitors; absence of cold storage and godowns; lack of technical know-how; and so on.

A very peculiar but nonetheless real reason for its backwardness is that, while it belongs to Tehri Garhwal District, administratively Thatyur is part of the Uttarkashi MLA constituency. Hence, it does not get the benefit of budget allocations for development purposes from either district.

In spite of all this, Thatyur has substantial potential for becoming the main marketing centre for agri/-horticultural products and tourism activities. It also has potential for the growth of agro-industries.

In looking at the Mussoorie-Chamba-Rishikesh axis, Action Plans have been developed with a view to exploiting the potential for diversifying economic activities in the region as a whole. The region has potential for the development of a number of farm activities, industrial activities, and tourism.

Farm Activities

1) *Apiculture*: The region offers potential for the development of apiculture as a cottage industry. Given the altitude variations, this is

possble at low and mid-altitudes. An individual bee box can generate as much as 10kg of honey annually. Extension support for the promotion of apiculture is necessary.

2) *Angora Rabbit Farming*: Angora rabbit farming can be promoted in belts where the temperature does not exceed 25°C (above 1,000 to 1,200m). There are enterprises close to Mussoorie and Ranichauri. The productivity per rabbit, per annum is around one kilogramme. Local people have responded well to training programmes. However, the provision of veterinary care and marketing support remains inadequate.

3) *High-Value Plant Culture*: Floricultural activities have now been introduced at higher altitudes close to Mussoorie and Dhanaulti. The focus currently is only on flowers for religious purposes in the holy towns of Hardwar and Rishikesh. Hitherto, this was largely catered to by growers further down in the plains. The future focus must be on exploiting the growing demand for cut flowers in metropolitan centres.

   Medicinal plants and herbs can be grown in several places and at a range of altitudes. Moisture content in the soil is the critical factor in the cultivation of these plants. There are many off-the-shelf technologies available which can enhance the cultivation of flowers, medicinal herbs, and aromatic plants.

   One aspect of the diverse plant practices of the people is the production of certain traditional exotic plants such as Amaranth and Gehath. The former, also called *Ramdaana* locally, is billed as the food of the 21st century by virtue of its low-calorie and high-nutritional value and easy cultivability.

   Gehath is a legume that has been found to be extremely useful for treating patients with gallstones and kidney stones. These crops have to be promoted and their value realised for local communities.

4) *Sericulture*: Sericulture is an important activity that has economic and environmental spin-offs. The national sericulture programme has till now been focussed in Dehradun Dist-rict. Since the infrastructure exists within the axis, it could be extended to Tehri Garhwal District. According to the project authorities, sericulture, using a one-acre plot, can generate up to Rs 10,000 net income annually.

5) *Mushroom Farming*: A major hurdle to large-scale farming of mushrooms is their rapid rate of perishability. Sites will, therefore, have to be strategically chosen keeping proximity to the markets of Mussoorie, Dhanaulti, and Narendranagar in mind.

Industries

1) *Food processing:* This activity offers considerable scope for development in the belt. In fact, the quality of certain horticultural crops currently produced, particularly apples and peaches, is not good enough to command better prices in comparison to those from the adjoining state of Himachal Pradesh. These could be processed into more valuable commodities.

   Similarly, a variety of vegetables is available which requires storage facilities for certain periods. The abundant growth of rhododendrons in the Mussoorie-Chamba belt offers scope for high value canned exports provided a properly coordinated effort is evolved.

   Places such as Chamba and New Tehri Township offer good prospects for electronic cottage industries as well.

2. *Mineral Water*: The Chamba-Narendranagar road alone has as many as 24 natural springs which can be developed to produce high-value mineral water. Those at higher altitudes and with catchments in uninhabited areas would be free of pollutants. The substantial market that the tourist traffic offers will in itself be sufficient, hence, no major marketing effort is required. These projects can be run by sustainable and manageable, wieldy small units and can yield greater economic returns to the locals themselves.

3) *Essential Oils*: Many plants grown in the region are excellent sources for the manufacture of high-value exportable essential oils. Virtually no effort has been made in this area so far. Inviting bio-technologists and technocrat-entrepreneurs to look into the prospects is bound to yield rich dividends.

4) *Tourism:* The single, largest potential economic activity is tourism. There are over 20

million tourists visiting the U.P. Hills. This belt itself, inclusive of Rishikesh and Dehradun, receives about 15 million tourists who, at present, travel to Mussoorie and Dhanaulti. A concerted effort is needed to promote destinations in the region by creating weekend getaways (at Narendranagar, Agrakhal, and in the proximity of Nag Tibba) and launching annual fairs and festivals at several other lesser-known centres of religious significance.

Action Plans have been developed for the promotion of apiculture in the Thatyur area, Hemval Valley, and the Siwalik slopes. Similarly, Action Plans for Angora rabbit farming have been proposed for Ranichauri, Suavakholi, Dhanaulti, and Kanatal. High-value horticulture is proposed in some areas, including Nagni, Dhanaulti, Ranichauri, Jajal, and Thatyur. Sericulture is proposed at lower altitudes around Thatyur, Jajal, and Fakot. Tourism promotion is proposed along the entire axis.

The Action Plans developed for the Mussoorie-Chamba-Rishikesh axis identify the locations for promoting the above activities, the spearhead agency, investment, and suggested phasing of the activity, and the implications and impact of the activity (Table 4.1). In addition, infrastructural facilities needed in Thatyur, Dhanaulti, Khaddukhal, Kanatal, Chamba, New Tehri, Ranichauri, Nagni, Agrakhal, and Narendranagar have also been identified (Table 4.2). The most frequently reported infrastructural facilities needed in the market towns along the entire axis are cold storage, a vegetable-processing centre, fax/ public telephone, improved electricity supply, improved civic amenities, a veterinary hospital, accommodation, a plant nursery, a regulated market, drinking water, and improved public transport.

Dang District, Nepal

In Dang District, Lamahi, Bhaluwang, and Narayanpur were identified as the market towns with most potential. Action Plans were developed for these towns on the basis of the assessment of problems and prospects following a participatory methodology. Meetings with local people were organised in these three market towns. The participants were the members of the *Ilaka* Chamber of Commerce, members of the local club, local businessmen and women, social workers, and local political leaders. The participants were requested to list measures that they feel are necessary for the sustained growth of the market centre and its hinterland. After listing all the required measures, the participants were asked to prioritise them. Discussions were also held to identify the financial source and implementing and maintaining institutions/agencies for the implementation of the proposed programme.

A) **Lamahi**

Lamahi in Chaulahi VDC is a fast growing market in Dang District. It has emerged as an important market centre for most of the settlements located south of the Highway. Before the construction of the Highway (i.e., before 1975), this market existed as an overnight stop. At present, Lamahi market has 284 functional units, of which 194 units are commercial. In 1988, it had only 201 functional units.

Lamahi has good market prospects because, apart from in the extreme east, there are no sizeable market centres in Deukhuri Valley. The highway has provided linkages with the major settlements in this region. The declining market conditions of Koilabas have further extended Lamahi's trading area. The main trading areas are Sonpur, Shishahaniya, Satbariya, Gangaparaspur, Gadawa, Bela, and some parts of Lalmatiya VDC. Wholesale trade of agricultural goods from Lamahi extends to Bhairahawa, Butwal, Nepalganj, and Kathmandu.

The locational advantages of Lamahi have been well realised and the government is attempting to develop this market in a planned way. For this purpose, the Town Development Committee was established in 1986. This committee has prepared a Town Plan of Lamahi. Nearly 68 hectares of land are allotted for town development, and this will extend up to Arjunkhola in the west, Arnahawa in the east, and Kolahi in the south.

Lamahi also faces many problems in its development. Some of the problems for the sustained growth of this town, in order of priority, after discussions with the local people, are as follow:

- ownership right to the land,
- drinking water,
- solid waste management,
- street drain,
- uncontrolled growth of buildings,

Table 4.1: Action Plans Developed for the Mussoorie-Chamba-Rishikesh Axis

Action Plans	Location	Activities	Spearhead agencies	Implementing agencies	Duration (years)	Investment (in millon IRs)	Anticipated gross revenue	Employ-ment generation
1. Apiculture	Aglar and Hemva valleys and Siwalik slopes	Production and promotion	*Khandi* and Village Industries' Board	NGOs, communities, groups, individual families	3	11.6	13.2	5,000-8,000
2. Angora rabbit farming	Ranichauri, Suvakholi, Dhanaulti, Kanatal	Production, promotion and marketing	NGO	Individual families, community groups, local entrepreneurs	3	37.0	56.0	2,000
3. High value plant culture	Potential throughout the region	Research on selection of species, promotion, and marketing	Jhardhar Gaon *Sabha*/ *Almus Gaon Sabha*	Jhardhar *Gaon Sabha*, Hill Campus of Pant University, Farmers and Entrepreneurs	4	11.0	33.5	1,000
4. Sericulture	Low and mid altitude area of Thatyur, Jaljala, Fakot	Production and promotion	National Sericulture Programme, Central Silk Board	National Sericulture Programme, NGOs, communities, and individual farmers	3	83.0	135.0	2,500
5. Tourism	Entire Axis	Develop-ment and promotional activities	Garhwal Mandal Vikas Nigam	NGOs, community groups, individual families	3	12.6	15.5	1,000-3,000
6. Others (artisanal products, mineral water, oil preparation		Detailed investigation		Technological and Professional agencies		2.0		

Table 4.2: Infrastructural Facilities Needed at Different Market Towns along the Mussoorie-Chamba-Rishikesh Axis

Infrastructural needs	1	2	3	4	5	6	7	8	9	10	Total
Renewable energy	x					x				x	3
Cold storage	x	x	x	x	x	x	x	x	x	x	10
Improved water supply		x	x	x	x	x	x				6
Improved road access	x										1
Alternative farming resource centre	x			x						x	3
Fax, public telephone	x	x	x	x	x	x	x	x	x	x	10
Regulated market	x	x	x		x	x			x	x	7
Handicraft training and market centre	x				x						2
Veterinary hospital	x	x		x	x	x	x	x	x	x	9
Vegetable processing centre	x	x	x	x	x	x	x	x	x	x	10
Improved electricity supply	x	x	x	x	x	x	x	x	x	x	10
Plant nursery	x	x		x		x	x	x	x	x	8
Improved public transport	x	x	x	x		x	x				6
Improved civic amenities	x	x	x	x	x	x	x	x	x	x	10
Accommodation	x		x	x	x	x	x	x	x	x	9
Total	14	10	9	11	10	12	10	8	9	11	

1. Thatyur
2. Dhanaulti
3. Khaddukhal
4. Kanatal
5. Chamba
6. New Tehri
7. Ranichauri
8. Nagni
9. Agrakhaal
10. Narendranagar

- lack of income-generating activities,
- deforestation,
- lack of public awareness about sanitation and health,
- lack of local-level institution to orient development initiatives.

A major problem is the lack of land ownership rights of the residents. The land where the market has been developing is legally owned by a Trust (Gorakchhya Nath - Ratna Nath *Guthi*). Because of the insecurity in land ownership rights, people stay for trade only for a few years and leave the area selling their tenancy to newcomers. This kind of migration has been continuing since the initial growth of this market town. It has been creating problems in developing institutions and in managing the environmental conditions of the area. In the absence of a land ownership certificate, which is required as collateral evidence, local businessmen cannot obtain loans from commercial banks. This has been limiting investment as well as trading activities in the area.

The Town Development Committee does not have the direct authority to raise funds from user groups, nor can it implement market development programmes. The committee has been trying to transfer landownership rights to the users from the *Guthi* (Trust). But this proposal has not yet been passed by the Central *Guthi Sansthan*. Immediate action should be taken to transfer the landownership rights from the *Guthi* to the users.

Drinking water is another major problem at present. However, a drinking water project is planned for completion within a year.

B) **Bhaluwang**

Bhaluwang is an important market centre on the extreme eastern border of Dang District. It has altogether 168 functional units, of which more than 140 units are commercial. It was one of the important market centres in Rapti Zone. People from Pyuthan, Rolpa, and parts of Arghakhanchi District converged here for marketing in the past as well. The traders in this market town were initially from centres such as Koilabas. The importance of this market centre has been affected by the construction of the Ghorahi-Pyuthan and Rolpa roads. With the construction of the East-West Highway, which is aligned one kilometre south of old Bhaluwang market, a small new market began to emerge. The construction of the Bhaluwang-Pyuthan road in connection with the construction of the Jhimruk Hydro-electricity project has spurred the rapid growth of this town. The growth rate of the old market town has been somewhat slower, but it is expected that both the old and the new *bazaar*(s), separated by a distance of a few hundred metres, will merge into a single market town soon in the near future.

Bhaluwang market town faces many constraints to its sustained growth. The following are the problems reported by the people of this market place, in order of priority:

- ownership rights to the land,
- electricity,
- health service,
- drinking water,
- river bank cutting,
- parking,
- post offices and telephone,
- educational institutions (secondary school), and
- lack of local-level institutions to orient development initiatives.

The major problem for the growth of this market centre, as in Lamahi, is the land ownership rights of the residents. Almost all the land in the old market is public land and has not yet been registered in the names of the current residents. Almost all the buildings on these lands are temporary in nature though they have been situated in this place for the last 20 years. This insecurity has been restricting investment activities and the growth of the market town. Immediate action needs to be taken to give ownership rights to the users. Another major constraint to the growth of this market town is that many of the service institutions, such as telephone, post office, and health posts, are not available in this market town, although these services are available in the VDC.

C) **Narayanpur**

Narayanpur market town in Narayanpur VDC extends in a linear fashion along the Ghorahi-Tulsipur road about 10km. west of Ghorahi, the district headquarters of Dang District.

The market town has a population of 374, is connected by a public bus service between Ghorahi and Tulsipur, and has altogether 52 functional units. The important functions include a drug store, readymade store, hotel/lodge, photo studio, goldsmith, agro-based mills, cooperatives, extension service, godown, police station, high

school, campus, and post office. These services are provided mainly to the people living in the surrounding villages.

Though this market centre lies almost midway between the two municipalities of Ghorahi and Tulsipur, it is growing due to its densely-populated hinterland. Of all the potential rural market towns in Dang District, Narayanpur is the fourth largest in terms of functional magnitude.

The main constraints in the growth of this market town, as identified by the townspeople, in order of priority, are as follow:

- lack of banking facility,
- lack of telephone facility,
- insufficient and unreliable supply of drinking water,
- lack of periodical market,
- insufficient health facility,
- lack of street drain,
- lack of employment generating activities,
- lack of irrigation facility,
- lack of rest houses near bus stops, and
- lack of local-level institutions to deal with the problems.

The Action Plans for these market towns were developed in light of the existing critical needs and were broadly categorised into four groups: 1) Physical Plans, 2) Infrastructural Needs, 3) Infrastructure and Environment-related Specific Projects, and 4) Production, Service, and Environment-oriented Human Resource Development Plan (Table 4.3). In each case, the lead agencies for the proposed project and the financial implications have also been delineated.

In **Lamahi**, a physical land-use plan has been developed keeping the needs of present and future growth in mind. Drinking water and upgrading of the road have been identified as the priority infrastructural needs. Among the environmental and infrastructural projects identified are Solid Waste Management and Street Drains. In the area of Human Resource Development, training activities for off-season vegetables and mushroom cultivation and livestock development have been proposed.

Experiences from other places in the *Terai* region of Nepal show that regional markets for vegetables, such as tomatoes, cauliflowers, and capsicum, already exist. Among the three vegetables identified, capsicum will have a market in the adjoining hill region and even in urban centres, such as Kathmandu and Pokhara, where the important consumers are hotels and restaurants. Immediate training needs identified by the prospective entrepreneurs at Lamahi, Bhaluwang, and Narayanpur are associated with capsicum. Training programmes on the cultivation of vegetables, such as cabbages, cauliflowers, and tomatoes, can be tied to national and regional institutions such as the Vegetable Development Department of HMG/Nepal. The training could be conducted locally

Table 4.3: Infrastructural Needs and Action Plans for the Market Towns with Most Potential in Dang District, Nepal

Action Plans	Lamahi	Bhaluwang	Narayanpur
A. Infrastructural needs			
1. Drinking water	x	x	
2. Electricity		x	
3. Irrigation			x
4. Schools		x	
5. Road improvement	x		x
6. Health service		x	x
7. Telephone		x	x
8. Post office		x	x
9. Bank			x
B. Infrastructure and environment-related specific projects			
1. Drinking water		x	
2. Bus park		x	
3. Solid waste management	x		
4. Street drain	x		x
5. Waiting shed			x
6. Road construction			x
7. Protection of river bank		x	
8. Irrigation			x
9. Hygiene and cleanliness	x		
C. Production and Service Oriented Human Resource Development Plan			
1. Off-season vegetables	x	x	x
2. Mushroom cultivation	x	x	x
3. Livestock development	x	x	x
4. Hair cutting saloons	x		
5. Tailoring	x		

through the District Agricultural Development Office. The trainees from these programmes can then impart skills to other farmers at the grassroots' level.

Mushrooms fetch a good price, both in the local markets and in other urban centres. There are mainly two varieties promoted in Nepal and the spores are available at Khumaltar agricultural station. *Plutorus* can be cultivated without much difficulty and over a relatively longer period (six months). Another variety, i.e., *Agicus*, is limited to only one growing cycle (three months). Since both varieties can be cultivated in cooler months in this district, excess produce could be dried and sold in different markets. Presently, the government has been conducting training programmes on mushroom cultivation. The department has a laboratory for the production of mushroom spores which are distributed and sold to prospective farmers. However, the department does not have subsidised or paid training programmes for farmers outside the Kathmandu Valley. These need to be developed.

With the growing rate of urbanisation, the demand for livestock products will grow. Therefore, prospective entrepreneurs should be trained in livestock development.

Training for prospective entrepreneurs in hair dressing and tailoring will help to generate employment opportunities within the market towns. There are good prospects for one or two saloons and some tailoring shops specialising in *Tharu* dresses in Lamahi. Moreover, training programmes to create awareness about cleanliness and hygiene among women in different households need to be launched.

It is suggested that all these training activities be linked with existing government or NGO programmes.

In **Bhaluwang,** a physical land-use plan has been proposed in view of the present and future prospects of growth. Priority infrastructural needs include drinking water, electricity, health, and communication services. Among the environment-related projects are the Drinking Water Project, a project to control river bank cutting along the Rapti River, and construction of a Bus Park to relieve traffic congestion. Similar to Lamahi, off-season vegetables, mushroom cultivation, and livestock development have also been proposed as human resource development and training activities.

Unlike Lamahi and Bhaluwang, **Narayanpur** is expected to undergo a slower rate of physical expansion. The land-use plan for Narayanpur has been formulated with a view to expanding commercial and institutional functions in the future. However, land-use control will be difficult due to the fact that most of the land is privately owned.

The major infrastructural needs relate to communications, road improvement, health services, and banking. The specific infrastructural and environ-ment-related projects that have been proposed relate to street drainage; irrigation (to increase marketable agricultural production); construction of a Bus Park and shed; and road construction and improvement (for improved access from the hinterland). Training programmes for the development of off-season vegetables, mushrooms, and livestock have also been proposed.

The Action Plans that have been proposed are complemented by a set of policy recommendations. The overall emphasis is on creating institutions at the local level for market town development. Minimum infrastructural standards need to be maintained; a road transport master plan has to complement efforts to promote investment in market towns; and a regular system of creation and updating of a basic data set for market towns needs to be introduced.

Ghizar District, Pakistan

In Ghizar, the four settlements assessed to have the most potential for development are Gupis, Yasin, Chatorkhand, and Gahkuch. In order to develop action plans, questionnaires covering several pertinent issues were formulated and interviews were conducted with government officials, local businessmen, social organisers, and activists from Village/Women's organisations in all these market towns. After analysing this information, action plans were developed. The required infrastructural facilities and proposed action plans for further development of these most potential market towns are presented in Table 4.4.

A) **Gupis**

Gupis has a better economic and social infrastructure. It has an agricultural bank, hydroelectricity, one national bank, a post office, a public call office, a 10-bed hospital, a basic health unit, one middle school for boys and high schools for bothboys and girls. In addition, Gupis has a

Table 4.4: Infrastructural Needs and Action Plans for the Market Towns with Most Potential in Ghizar District, Pakistan

Activities	Gupis	Yasin	Gahku-ch	Chatork-hand
A. Infrastructural needs				
1. Irrigation	x		x	
2. Water supply	x			
3. Hospital	x		x	
4. Civil supply depot	x			
5. Road improvement	x	x	x	x
6. Improved supply of electricity		x	x	x
7. Postal service				x
8. Fruit nursery				x
9. High school				x
B. Production and service-related specific plans				
1. Irrigation	x			
2. Manufacturing skills' development by establishing a vocational training centre (spinning weaving, garments)	x	x	x	x
3. Tanning factory			x	
4. Fruit processing		x		x
5. Vineyard			x	
6. Nursery research				x
7. Livestock development	x		x	x
8. Vegetable seed production				x
9. Training on extraction and processing of minerals				x

drinking water scheme, though not all the inhabitants benefit from it at present. It has over 70 functional units and the growth in commercial functions has remained rapid. It has a population of about 3,000. The main agricultural products grown in Gupis are wheat, maize, potatoes, and tomatoes. Potatoes and tomatoes are the two main products traded in the village *bazaar*(s), but only on a marginal scale. Tourism is growing, with about 400 to 600 people visiting the place annually. Accommodation facilities are also growing. Gupis imports wheat, manufactured goods, and fuelwood and exports skins of goats, sheep, and yak in addition to horticultural produce such as apples, apricots, walnuts, and almonds.

8. In 1993 there were 29.77 Pakistani rupees to the US Dollar.

In terms of infrastructural requirements for market town development, the following were ranked as important: metalling of the road from Gilgit to Gupis, irrigation channels, a hospital, a water supply scheme, and a civil supply depot. Since the creation of a better basis for market town development requires an increase in marketable production, the irrigation channel project is regarded as vital to the development of the market. There are about 1,125 acres of land which can be used for productive purposes. If 50 per cent of this barren land was irrigated, the villagers could grow an extra 527 metric tonnes of wheat. Gupis town could then become a net exporter of wheat. This would boost the village economy substantially and give rise to a more market-oriented economy. It would cost PRs.[8] 2.5 million. Complete restoration of the 10-bed hospital and an increase in capacity to 25 beds would be a valuable infrastructure in this area. A number of income-generating activities for women has been proposed. These include promotion and marketing of poultry and vegetable goods and training for sewing and knitting.

B) Yasin

Yasin is situated at about 2,400m in a flat open and picturesque valley. It has electricity and a sanitation system, but the road condition is very poor. Trucks cannot reach Yasin market town. It has a population of a little above 2,500 and about 20 general stores. It has a post office, a public call office, a middle school for boys, a high school for girls, (the boys' high school is located a few kilometres away from Yasin proper) a basic health unit, and five government offices. The main agricultural commodities in Yasin are wheat, maize, barley, and vegetables. Almost all these products are being used for home consumption. It also has seven flour mills and six sawmills. Though this valley is suitable for the development of trekking tourism, it has not yet picked up.

Almost all the items in the general stores are imported. Exports from Yasin are virtually non-existent, aside from a few individual households taking small amounts of dried apricots down to Gilgit. Though the area is suitable for walnut cultivation, very few households grow them for sale. The reason for this limited production of walnuts in the area is that earlier generations refused to plant fruit trees because the *Mir* de-

manded an excessive portion of the produce in taxes. The *Mir* system was abolished in Yasin in 1974, but, even today, very few households have walnut trees. The valley is rich in minerals and marble, but there is very little commercial activity.

The main infrastructural needs are upgrading of the road from Gilgit, which is regarded as the key to development in many other areas, and sufficient supply of power. The lack of non-agricultural enterprises prevents the town from becoming a significant market centre. It has therefore been suggested that upgrading of manufacturing skills would have a significant impact on the area in terms of economic growth.

Action Plans proposed for Yasin include a Vocational Training Centre for imparting training in manufacturing garments and shoes and a fruit processing unit. The Training Centre could be operated through the involvement of existing village organisations. Training in livestock management and promotion of family planning were the other projects considered.

C) **Gahkuch**

Gahkuch is the most developed market town in Ghizar District. It is situated at an altitude of 1,670m and has a population of over 5,000. As the district headquarters, Gahkuch has several government offices. It has a post office, a public call office, commercial banks, an agricultural bank, a hospital, a basic health unit, and primary and high schools. It also has electricity. It has a total of 55 general stores. This market town has been growing rapidly in terms of functional units, range, and magnitude, as well as population. The main agricultural products of this area are wheat, maize, barley, and potatoes. The most important fruits are apricots, grapes, and walnuts. There is very little industry. There are only two sawmills, three welders, four blacksmiths, and 25 masons in lower Gahkuch. Tourism is nascent, although tourist attractions, including cross-country skiing prospects, exist. Vegetables and potatoes are the local commercial produce. The goods being exported from Gahkuch are primarily dried apricots, walnuts, almonds, apricot kernels, and skins and hides. There is one wholesaler in Gahkuch dealing in nuts and dried fruits. All the produce is exported directly to Rawalpindi. Few perishable fruits are exported to Gilgit as the road condition is very poor. One Pathan wholesaler comes to this market town once a year to collect skins and hides for down country export. Annually, one truck load is taken to Lahore. It is expected that when the road has a metal surface, all sorts of exports can be increased, in particular perishable fruits like fresh apricots and grapes.

In addition to upgrading and metalling the road from Gilgit to Gahkuch, the other infrastructural requirements include a hospital, a better electricity supply, lift irrigation, and control of the river channel.

Among the productive activities for promotion are the establishment of a tannery for processing skins and hides and a vineyard for grape cultivation. In spite of the government's apathy towards the establishment of a winery, there are good prospects for exports. Villages in Ghizar have an average of 100 grapevines. Villages in Punial have more than 3,600 vines. Presently, there is barely any market for grapes in the district and taking fresh grapes to Gilgit results in a lot of wastage and, hence, low prices. It has also been recommended that the winery be located in the vicinity of Gahkuch town; the prime product would be white wine at first and rosé and red wine and cherries in the later stages; bottles, corks, and labels would be brought from down country, unless these are produced locally; and the final products will be sent to Islamabad and Karachi for sale to the non-Muslim/expatriate community and also for export. The Government of Pakistan would have to play a leading role in the venture as it would be giving the permit to run these operations and also outlining the rules and regulations to be followed.

Promoting women entrepreneurs for commercial activities, particularly poultry-raising, is also suggested.

D) **Chatorkhand**

Chatorkhand has a population of around 2,500. It has grown pretty rapidly in the last decade. Currently, it has 40 general stores, has electricity, and has a commercial bank, a post office, a public call office, one 10-bed hospital, a basic health unit, and schools and government offices. The only industries are four sawmills. There is no tourism and the prospects are not bright. Chatorkhand imports wheat and manufactured goods. Dried apricots, walnuts, and almonds are the main export items. The village is self-sufficient in vegetables and fruits.

Road improvement is the foremost infrastructural requirement, as the roads are in an appalling condition and are not suitable for trucks. Other requirements for Chatorkhand include improvements in the postal and educational services. Establishment of a fruit nursery and a fruit processing unit could further enhance market town development in Chatorkhand. It is expected that the proposed fruit nursery will be able to identify and recommend high yield varieties of fruit trees based on its research findings. Prospects for commercialising existing weaving activities also exist. Weaving rugs (*sharma*[s]) and knitting overcoats are common activities, but very few items are ever sold. Therefore, it has been suggested to establish a centre where *sharma*(s), overcoats, and other articles can be made for export. There is also scope for the exploitation of mineral resources by providing technical skills for extraction and processing. A Vocational Training Centre to impart training in these areas has been proposed. This centre should work in close association with the Aga Khan Educational Services already active in the area.

Setting up poultry farms, promoting the commercial production of vegetable seeds, and training women in weaving would also address the needs of women in the area.

The general conclusion from the remote Northern Areas of Pakistan shows that here the need is for the provision of the most basic infrastructure and the focus must be on laying the foundations for rapid development of market towns in the future. The Action Plans, in this sense, are expected to help upgrade villages into market towns.

Action Plans: A Comparative Perspective

The major constraints in the development of the market towns with most potential in the study areas are summarised and presented in Table 4.5. The Action Plans proposed for the market towns basically reflect these constraints. Various elements of the Action Plans can be generalised to show the kind of programmatic focus that may be required for the promotion of market towns in the HKH mountains. In almost all cases, subsistence agriculture; lack of rural infrastructure; very weak links with the production system in the hinterland; lack of a marketing culture and enterprenuerial skills; lack of institutional support to encourage group production, marketing, and transport; lack of storage and processing facilities; a limited capacity for revenue generation; lack of investment opportunities; lack of integrated market town development strategies and policies; and lack of institutions dealing with these problems emerge as the constraints to the development of market towns.

Almost all the market towns in the study areas demonstrate the lack of basic infrastructure such as drinking water supplies, electricity, communication facilities, road linkages with the immediate hinterland, and a physical planning framework to guide contemporary and projected developments. The lack of mechanisms at the national, regional, and district/county levels to recognise and support the process of spatio-economic development appears as a major caveat to the growth and promotion of market towns with potential.

The Action Plans emerging from the studies also reveal that the market towns cannot prosper unless the production potential of the hinterland is adequately tapped. In the context of a lack of specialisation and/or diversification of production activities of the hinterland, market towns can only play the role of bulking and distribution centres. There is a need, in almost all cases, to enhance both the forward and backward linkages of market towns. The role of market towns in encouraging market-oriented, specialised agricultural production, on the one hand, and agro-processing and related activities, on the other, is recognised in each case. It is only through this process that market towns can play effective roles as centres of rural production and employment. Institutions that encourage this process appear to be conspicuous by their absence in each context. In the context of the mountain areas of the HKH region, local institutions capable of playing this role may emerge only at a later stage. Therefore, the role of supporting government institutions becomes all the more important.

An area of enormous importance that emerges from the Action Plans is Human Resource Development. Recognition of the type and level of requisite skills and creation of such skills in a demand-driven context are therefore matters for priority attention. Since there are no local-level institutions and organisations that can articulate the needs of market towns, it has, in most cases, not been possible to strengthen local-level *receiving mechanisms* in the market towns. There seems to be enough scope to tap the HRD training capability of district, regional, or national level agencies in the market towns. This is an important area requiring further exploration.

Table 4.5: Major Constraints in the Development of Market Towns in the Study Areas

	Dechang, China			Tehri Garhwal, India			Dang, Nepal			Ghizar, Pakistan				Total
	1	2	3	1	2	3	1	2	3	1	2	3	4	
Drinking water		x	x	x	x	x	x	x	x	x				9
Electricity		x	x	x	x	x		x					x	7
Road			x			x				x	x	x	x	6
Irrigation									x	x				2
Drainage/sanitation			x		x		x		x					4
Cold storage/godowns	x			x	x	x								4
Telecommunications		x	x	x	x	x		x	x			x		8
Regulated markets				x	x	x			x	x				5
Civil supply depots										x				1
Civic amenities	x			x	x	x								4
Accommodation	x			x	x	x			x					5
Bus park/taxi stand	x							x						2
School/college					x			x						2
Hospital								x		x			x	3
Veterinary services				x	x									2
Plant nurseries				x		x						x		3
Handicraft/weaving centres			x		x	x						x		4
Agro-processing plants	x		x		x	x				x	x	x	x	8
Vocational training			x			x						x		3
Ownership right to land							x	x						2
Deforestation							x							1
Guided physical plan			x				x	x	x					4
Income-generating activities			x		x		x		x					4
Public awareness							x							1
Local institutions		x					x	x	x					4
River cutting								x						1
Mineral-based industries	x	x												2

China: 1. Dezhou, 2. Yonglang, and 3. Badong
India: 1. New Tehri, 2. Chamba, and 3. Thatyur
Nepal: 1. Lamahi, 2. Bhaluwang, and 3. Narayanpur;
Pakistan: 1. Gupis, 2. Yasin, 3. Chatorkhand, and 4. Gahkuch

Financing the proposed Action Plans presents the most crucial of all constraints. Some market towns under study, for example, Dechang County, China, are examples of the financing role that the local private sector can play in market town development. In most cases, financial resources invariably have to be drawn from the existing public sector financial institutions. A process for market towns to qualify for such assistance and institutional accountability with respect to such assistance must, therefore, be established as a matter of priority.

In most of the Action Plans, environmental concerns do not emerge as strongly as one would assume they would. Although the issues of water pollution, river bank cutting, and the need to mitigate the adverse consequences of these problems are brought out in a few cases, the entire issue of seismicity and its implications for construction in the market towns, the issue of environmental sanitation and hygiene, and so on have to be addressed in the development of market towns. Awareness about these aspects is definitely warranted.

5 CONCLUSIONS: MAJOR CONCERNS IN MARKET TOWN ASSESSMENT

The Market Town Assessment Studies were initiated as an exercise in supporting demand-driven approaches to the promotion of market towns. The central thrust was to develop a methodological framework for assessing market towns with potential and to develop Action Plans for their development. It was based on the assumption that the advantages accruing from rural-urban linkages could be better enhanced in mountain economies through a market town development strategy. The success of such a strategy, however, depends on the existing economic potentials and the extent to which these potentials can be realised through the implementation of strategic Action Programmes which would be economically viable and sustainable.

Concerns in Methodology

The case studies undertaken as part of ICIMOD's Market Town Assessment Programme reveal that such an exercise needs to address concerns that are methodological as well as substantively programmatic in nature. Addressing these concerns in each context would create a sound basis for incorporating Market Town Assessment into the agenda for action in integrated mountain development. Some of these concerns are highlighted in this chapter.

Problem of Data

The database on market towns is found to be rather weak, and this is a great impediment to the assessment of the potential, as well as to the planning and development of market towns. It is clear that exercises such as the present one could play a very meaningful role in creating a database and in sensitising policy-makers and programme managers to the need to create and update a database on market towns. A minimum database, consisting of population size, number and range of functional units, production base, and generalised hinterland, was felt to be imperative. The role of infrastructure, particularly roads, is also regarded to be crucial. The data problem is generally felt to be an outcome of the lack of attention to market towns in the process of district planning. Some countries, notably India, have a better database system than Nepal or Pakistan or China. In all cases, however, there is a need to enhance the database on a priority basis.

Usefulness of Participatory Methods

The tasks of identifying potential market towns and developing Action Plans were based on participatory methods. Many of the perceptions obtained from the participatory methods tended to be qualitative in nature. It is believed that qualitative perceptions could be used to develop a more comprehensive macro-level assessment of market towns. Qualitative perceptions could similarly be used to develop weightages for ranking potential market towns or in prioritising projects or Action Programmes.

Technical Assessment of Participatory Perceptions

In the development of Action Programmes, participatory perceptions regarding the prioritisation of programmes or projects are often based on differing notions of the requisite financial resources. This is partly because, often, the participants were not able to technically assess the nature and need of the programme or project. In all the cases of Action Plan development, participatory perceptions need to be complemented by a thorough technical assessment of the projects.

Establishing the Comparative Advantage of Projects

Action Plans, in order to become saleable, need to focus in relatively greater detail on aspects of the comparative advantage of proposed projects. This is particularly essential if Action Plans for particular market towns are to receive the overall endorsement of the district-level planning and administration body. Endorsement of the Action Plans by the district planning process (*Zilla Parishad* in India, District Development Committee in Nepal, and the like) is deemed essential for follow-up action on the proposed projects.

Development Axis vis-a-vis Market Town

The Indian case study brought out very clearly the fact that, in looking at individual market towns, the regional perspective is extremely essential. This is particularly so in mountain areas where intervention in the promotion and diversification of the economy has to be both area-/region- as well as location-specific. The regional perspective emerged naturally in the provision of capital-intensive infrastructure. Wherever appropriate, the idea or notion of the development axis and the system of market towns must be seen as being complementary to one another.

Programmatic Concerns

On a more substantive programmatic level, the Market Town Assessment studies highlighted two major themes. The first theme is more germane to the **Creation of Conditions for the Development of Market Towns**. The second theme relates to the **Role of Institutions for the Development of Market Towns**.

Creating Conditions for the Development of Market Towns

It is evident that lack of spontaneous economic vitality and dynamism in market towns, particularly in mountain areas, is a manifestation of the lack of infrastructure and a failure to diversify the economy, both of which are often closely related.

Provision of Basic Infrastructure

The studies suggest that there are four basic infrastructural requirements essential for creating conditions for market town development and promoting market towns with potential. These are roads, drinking water, electricity (power), and communications. Since these normally are class neutral, capital-intensive, and require concrete planning, the government (at the national/regional or district level) has to play the main role in the planning of such infrastructural amenities.

Diversification of Economic Activities

Sustainable market towns emerge as a result of the exchangeable or processing surplus generated by the diversification of economic activities. While infrastructure may normally and spontaneously create conditions for the diversification of economic activities, the strategy for promoting market towns with potential in mountain areas calls for the identification of location-specific potentials related to specific farm and off-farm production activities and tourism. Furthermore, such potentials have to be assessed in terms of real economic cost advantages relative to other comparable areas and locations.

Physical Planning vis-a-vis Investment Packages

The traditional planning concept of planning for small towns and market centres was often oriented by the establishment and enforcement of land-use plans without an idea of the financial and investment packages required to realise the plan. While the utility of an indicative land-use plan is still felt to be relevant, *Integrated Action Planning* could be an alternative way of looking at the traditional concept of the land-use plan. The aim of Integrated Action Planning is to develop an indicative Physical and Environmental Development Plan for a potential market town, to identify Action Projects which, over time, have the potential of bringing about the desired changes in land use. Integrated Action Planning is based on rapid appraisal methods and a participatory process in the identification of priority projects. Integrated Action Planning for market town development could use the methodology developed in the present exercise and provide a flexible framework to create conditions for market town development.

Regional Infrastructural Planning as a Strategy for Market Town Development

All the four case studies showed clearly that the role of road infrastructure in a regional context is an extremely important consideration in market town development. In the mountain areas in particular, road alignment often tends to determine the centrality of a market town in terms of access, the location of services, and other economic activities. The potentials of a market town in many instances remained contingent on the quality of road infrastructure. Therefore, adequate appreciation of the role of small and market towns in particular spatio-economic contexts is essential at the broader regional level. Such an appreciation must be the basis for regional infrastructural planning, in general, and road planning in particular.

Equity Concerns vis-a-vis Market Town Development

Agglomeration of service functions is generally regarded as a process that complements the

promotion of market towns with potential. While such an agglomeration in these market towns is important from the perspective of coverage and efficiency of service distribution, it is also recognised that not all services need to be agglomerated. In inaccessible mountain areas, service distribution, particularly in terms of basic education, health, and communication services, has to take into account the concerns of equity. Therefore, there is a need to balance equity concerns with the development of market towns.

Role of Institutions for Market Town Development

The discussions on the case studies and the prevailing policy environment regarding market town development in each context reveal that there is an institutional vacuum at the local level in most cases. Even when institutions existed at the district and sometimes at the local level, such as in India, the problem is one of coordination. Often institutions do not work in tandem. In Nepal, there is a district planning process, but institutions that could be tapped to support the various needs and concerns of market town development are lacking. Institutions such as the Urban Development through Local Efforts (UDLE) or the Town Development Fund Board (TDFB) focus mainly on municipalities and support their activities through enhanced technical capabilities or through grants and loans. Small market towns have no legal basis as entities to claim or request the kind of support normally provided by these institutions. In the Northern Areas of Pakistan also, institutions at the local level are not effective entities for orienting the development of market towns. A better institutional basis exists in the counties of Sichuan Province, China. In most cases, however, the planning capabilities of such institutions remain quite limited.

The first requirement, therefore, is to create a policy environment conducive to the development of institutions for market town development.

There is, it seems, a need for three kinds of institution. The first could be termed Catalytic institutions. These could be NGOs, government institutions, and academic or research institutions that could play a catalytic role in terms of providing/creating/generating a database; identifying/assessing/preparing projects; assessing training needs; training personnel; and generally providing the initial impetus and basis for market town development. Collaborating institutions involved in the present study, such as the University of Roorkee, Tribhuvan University, or the Chengdu Institute, or an INGO, such as the Aga Khan Foundation, could play this role. While support is needed to assist such institutions to play these roles, this process could also relieve the burden on urban-related institutions in the HKH countries, which often tend to remain top heavy and do not have the required manpower to play this role.

The second and by far the most important institutions would be what could be called Sustaining institutions. *Town Development Committees* or representative institutions, which have a legal mandate for developing plans and programmes for the development of market towns, fall in this category. These institutions will have to be assisted to assume the ultimate responsibility for developing programmes and prioritising projects on the basis of participatory approaches and for linking up with financial institutions or creating a revenue base of their own to implement projects and maintain and sustain activities for the promotion of market towns.

The third type of institution could be termed Supporting institutions. These could be financial institutions, training institutions, and so on under the auspices of the government or NGOs. A number of such institutions exists in all cases at national or regional levels. The problem is to identify such institutions and develop the modalities and processes of tying projects developed at the local level in market towns to such existing funding sources. Clearly, there is a need to take greater advantage of existing institutions. In the case of India, for example, it is mentioned that there are considerable and often unutilised funds at the district level which could be used, with proper coordinated programme development, for the purpose of developing potential market towns. While it is considered imperative for projects to be approved by the *Zilla Parishad* (and if possible to look for funding within the district planning framework), it is also felt that specialised financial institutions for market town development also have to be created. Such financial institutions could be established as a Market Town Development Fund. Considerations must also be provided to operationalise a self-financing mode of support. An important area in all this is the role of human resource development and of training institutions in supporting activities in specific market towns.

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Intervention Guidelines

Area of Investigation	Components	Method of Enquiry	Reasons for Investigation
1. Local Population and Employment	a) Population growth b) Population distribution c) Migration d) Employment structure e) Age distribution f) Urban male/female proportions g) Daily/weekly population flows	1) Obtain as much detailed population, employment, and migration data as possible from census and other sources. 2) Discuss with local leaders and experts on population and employment patterns and trends. 3) Obtain from rural households information on their non-agricultural employment, and its trends.	a) Local detail on population and employment trends will assist in identifying more precisely where growth is taking place. b) Need to distinguish push and pull factors in rural to urban flows - push may become less severe as agriculture is reformed c) Frequent in and out flows important: towns and more important centres of activity than indicated by permanent population
2. Economic Activities	a) Geographical distribution of economic activities b) Levels of economic activity c) Future changes in main economic activities d) Characteristics of informal sector e) Linkages among economic activities: urban-urban, urban-rural f) Flow of goods and services within, into and out of the region g) Involvement of women in emerging economic activities	1) Examine secondary data on economic activity by location: industrial, agricultural sector studies ; census; special studies; map the data. 2) Discuss local economy with local private or parastatal sector leaders: chamber of commerce, trade associations, banks. 3) Visit entrepreneurs at informal sector sites: markets, repair and processing centres. 4) Discuss with entrepreneurs their current activities, growth potential, infrastructure needs, credit needs, willingness-to-pay. 5) Discuss with entrepreneurs their links with other entrepreneurs. 6) Obtain same information from sample local farmers at varying distances from towns. 7) Make sure women are included in discussions: they dominate many "linkage" activities.	a) The objective is to build up a picture of the local economies. b) Once the dynamics of the local economy are understood, it will be possible to identify what is needed to make them more efficient. c) Need to identify, as a result of this analysis, the key investment requirements, including better access to credit d) Also identify the capacity of the local community to pay for the investment, or at least its maintenance. e) Identify activities, training areas, etc from which women could benefit.
3. Infrastructure	a) Land use b) Basic infrastructural and community services c) Marketing, processing and storage facilities	1) Consult land use maps. 2) Together with local administrators, experts, draw rough land use map. 3) Add to map sketch of infrastructure lines, current traffic. 4) Note quality of infrastructure, through discussions with local engineers. 5) Note location, quality marketing facilities, and ownership. 6) SPOT satellite imagery could be used to map current and past land use and main transport network (where available).	a) Need to link demand for infrastructure and services with supply b) Also, need to link where development taking place (rural and urban) and access of those locations to infrastructure c) Need to identify locations where demand is greatly outstripping supply: their rates of return on upgrading will be very high d) Link information on regional flows of goods, produce to marketing facilities
4. Investment Priorities	a) Infrastructure needs by location b) Infrastructure costs by location, including maintenance c) Priorities, on the basis of alternative development scenarios d) Credit needs	1) Together with local leaders and community groups, draw up list of infrastructural needs with costs. 2) Prepare alternative scenarios on availability of funds (from all sources), linked to alternative development scenarios. 3) Prioritise the investments in accordance with these scenarios. 4) Estimate private and local public sector credit needs under alternative investment programmes.	a) Need to link what is needed to stimulate the local economy with the likely availability of resources b) Availability of resources will, to a certain extent, vary by local economic performance, if cost recovery and sustainable growth is high, prioritise them. c) Both private and public sectors will need access to credit to fund their own development programmes. This applies to informal as well as formal sectors.

Area of Investigation	Components	Method of Enquiry	Reasons for Investigation
5. Financial Resource Availability	a) Central government expenditure on urban infrastructure b) Central government expenditure on "linkage" infrastructure c) Local government expenditure d) Local government revenue e) Private contribution potential f) Cost recovery potential	1) Examine development and current budgets. 2) Note proportions allocated to local and regional government. 3) Examine local authority's budgets. 4) Note dependence on central government for development and recurrent expenditures. 5) Examine trends in local revenue mobilisation by local authorities. 6) Assess actual and potential cost recovery by infrastructural agencies. 7) Discuss with local "focus" groups willingness-to-pay.	a) The first step is to make rough estimates of central and local government resources available for investment in market towns and to maintain those investments. National cutbacks in public expenditure may be reducing central government allocations. b) The next step is to estimate possible future increases in those resources from local sources in the future, the property tax reevaluations, etc. c) Then, explore potential for private sector or beneficiary contributions: this includes infrastructure agencies or municipalities recovering the costs of their services.
6. Environmental Context	1) Site and situation hazard 2) Local capability for dealing with it 3) Sanitation-related issues 4) Financing and cost recovery	1) Physical survey 2) Discussion with experts 3) Identification of priority sanitation problems and problems that could emerge with projected growth 4) Discuss with different groups the actions that need to be taken for maintaining a clean environment and willingness to pay of the local population.	a) To identify the potential environmental problems and plans for mitigation

Source: Adapted from Garnett et al 1989

Factors and weight values used to identify potential market towns in Dechang County, China

	Factors	Weight value
1	Population size, off-farm population and minority population	0.148
2	Accessibility, including planned road linkages and postal and telecommunication services	0.148
3	Economic base, including agriculture, other resources, financial ability, historical importance, existing infrastructure	0.213
4	Functional magnitude, including commercial units and their trend, volume of trade and its trend	0.291
5	Size of hinterland	0.148
6	Other issues such as site and situation, environmental hazards	0.052

Criteria and scoring technique used to identify the potential market towns in Tehri Garhwal District, India

	Attributes of Market Town	Scoring technique
1.	Population dependent on town	<1000 = 1, 1000-2000 = 2, >2000 = 3
2.	Population growth since 1981	Declined = 0, Low = 1, Moderate = 2, Rapid = 3
3.	Floating population in a week	<50 = 1, 50-100 = 2, >100 = 3
4.	Frequency of bus service	>2 hr = 1, 1-2 hr = 2, <1 hr=3
5.	Electricity supply	Yes = 1, No = 0
6.	Trade potential	Declined = 0, Low = 1, Moderate = 2, High = 3
7.	Industrial potential	Declined = 0, Low = 1, Moderate = 2, High = 3
8.	Tourism potential	Declined = 0, Low = 1, Moderate = 2, High = 3
9.	Growth of town (in ten-year period)	Declined = 0, Low = 1, Moderate = 2, High = 3
10.	Agri. Cooperative Bank	1 or > 1 = 1, Nil = 0
11.	Post Office	Yes = 1, No = 0
12.	Telegramme Office	Yes = 1, No = 0
13.	Public Telephone	Yes = 1, No = 0
14.	Commercial Bank	<2 = 1, 2 and more = 2
15.	No. of Government Offices	<10 = 1, 10-15 = 2, >15 = 3
16.	High School	One = 1, >One = 2
17.	Inter College	One = 1, >One = 2
18.	Deg. College/Polytechnic	One and more = 1, Nil = 0
19.	Vocational Training Centre	Nil = 0, One = 1, > One = 2
20.	Hospital	Nil = 0, One = 1, > One = 2
21.	Newspapers	<500 = 1, 500-1000 = 2, >1000 = 3
22.	No. of four-wheelers	<20 = 1, 20-50 = 2, > 50 = 3
23.	No. of commercial establishments	<20 = 0, 20-50 = 1, 51-100 = 2, >100 = 3
24.	Growth of shops in last ten years	Declined = 0, Low = 1, Moderate = 2, High = 3
25.	Water supply	Un. Restrict = 2, Restrict = 1
26.	Seed and fertiliser distribution centre	Yes = 1, No = 0
27.	Plant nursery	Yes = 1, No = 0
28.	Veterinary dispensary	Yes = 1, No = 0
29.	Truck/taxi service	Yes = 1, No = 0
30.	*Mahila/Yuva Mandal*	Yes = 1, No = 0

Criteria used to identify potential market towns in Dang District, Nepal

Criteria	Growth trend between 1988/89-1994		
	Increasing	Declining	No change
State of functional types (range)			
State of commercial functions (units)			
State of functional magnitude (total functional units)			
Functional types, commercial units and magnitude	At least 7 functional types, 10 commercial units, and functional magnitude of 20		
	Market towns which fulfill all the above criteria		
Planned infrastructure	Break-of-bulk point or nodal point which will be created by future development of road network		

Criteria and scoring technique used to identify potential market towns in Ghizar District, Pakistan

	Attributes of Market Town	Scoring technique
1.	Surrounding population dependent on village	<1000=1, 1000-2000=2, >2000= 3
2.	Growth in population since 1981	Decline = 0, <20% increase= 1, 20-40% increase = 2, >40% increase=3
3.	Electricity supply	No = 0, Yes = 1
4.	Trade potential	Low = 1, Medium = 2, High = 3
5.	Industrial potential	Low = 1, Medium = 2, High = 3
6.	Tourism potential	Low = 1, Medium = 2, High = 3
7.	Agricultural bank	No = 0, Yes = 1
8.	Post office	No = 0, Yes = 1
9.	Public call office	No = 0, Yes = 1
10.	Commercial bank	None = 0, 1 or > 1 = 1
11.	No. of government offices	None = 0, One = 1, 2-4 = 2, >4=3
12.	Middle school for boys	No = 0, Yes = 1
13.	Middle school for girls	No = 0, Yes = 1
14.	High school for boys	No = 0, Yes = 1
15.	High school for girls	No = 0, Yes = 1
16.	Hospitals	No = 0, Yes = 1
17.	Health units	No = 0, Yes = 1
18.	Number of commercial establishment	< 80 = 1, 80-150 = 2, >150 = 3
19.	Number of general stores	10-15 = 1, 16-25 = 2, > 25= 3
20.	Forest nursery	No = 0, Yes = 1
21.	Fruit nursery	No = 0, Yes = 1
22.	Distance from Gilgit, a major market town	>200km = 0, 200-150km =1, 149-80km = 2, < 80km = 3
23.	Drinking water	No = 0, Yes = 1
24.	Link road to main road	No = 0, Yes = 1
25.	Veterinary dispensary	No = 0, Yes = 1

Notes:

4. Villages with less than 10% of households already involved in marketing activities score low in this item.
5. Electricity supply, trade potential and accessibility of raw materials add up to scores - of low, medium or high. Villages without electricity will automatically score low.
6. Tourism potential depends upon accessibility, scenery, and tour agencies presently operating in the area.
22. < 80km was chosen as the maximum distance for 3 points as day trips to Gilgit are possible within this limit.

Biophysical and Socioeconomic Conditions of the Districts Under Study: A Comparative Perspective

	Dechang, China	Tehri Garhwal, India	Dang, Nepal	Ghizar, Pakistan
Biophysical Characteristics Location	101°54'-102°23'E 27°05'-27°36'N	78°08'-79°03'E 30°03'-30°06'N	82°10'-82°53'E 27°40'-28°15'N	72°41'-74°10'E 36°08'- 36°45'N
Area (km^2)	2288	4421	2955	5760
Altitude (m)	<1000-5000	335-6705	200-2058	1600-5775
Topography	More than 92 per cent mountain slopes and 9 per cent river valleys	Rugged with steep slopes narrow river valleys	Nearly 62 per cent mountain slopes and 38 per cent plain (*Terai* and Inner *Terai*)	Rugged with deep gorges and narrow river valleys
Climate	Subtropical monsoon, average annual precipitation 1170 mm	Subtropical to alpine monsoon, precipitation between 940-3180 mm	Subtropical to warm temperate monsoon, average annual rain - 940mm	Monsoon unaffected, and with average annual rain less than 133 mm
Socioeconomic Characteristics Population	170,504 (1993)	580,153 (1991)	354,413 (1991)	108,326 (estimated for 1994)
Gross density (person/km^2)	75	131	120	19
Population growth rate	1.5	1.6	2.9	3.52-3.81
Sex ratio	More male than female	More female than male	More female than male	More male than female
Ethnicity/races	Mixed	mixed	mixed	Muslims
Literacy (%)	64	39	40	47
Urban (%)	7-10	6	15	8
Road density Km/1000km^2	192	347	102	217
Population served (persons/km)	386	378	1181	499
Resources and Production Characteristics: Forest (%)	63	69	67	
Cultivated (%)	9	13	26	
Percentage of people engaged in agriculture	85	80	80	40
Annual income		2900-4900	11600	17700
Major items of export	Sugar, tobacco, silk cocoon, iron ore, paper, fruits, and vegetables.	Vegetables, fruits and millet.	Primary and non-processed agricultural goods such as rice, maize, wheat, mustard, and potato.	Dried fruits, nuts, and vegetable seeds.

Source: Action Oriented Assessment of Market Towns in Selected Mountain Areas of the Hindu Kush-Himalayas. District Spatio-economic Profile Reports.

About the Authors

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ICIMOD is the first International Centre in the field of mountain area development. It was founded out of widespread recognition of the alarming environmental degradation of mountain habitats and the consequent increasing impoverishment of mountain communities. A coordinated and systematic effort on an international scale was deemed essential to design and implement more effective development responses based on an integrated approach to mountain development and mountain environmental management.

The establishment of the Centre is based upon an agreement between His Majesty's Government of Nepal and the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) signed in 1981. The Centre was inaugurated by the Prime Minister of Nepal in December 1983 and began its professional activities in September 1984 with the support of its founding sponsors:

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Participating Countries of the Hindu Kush-Himalayan Region

* Afghanistan
* Bangladesh
* Bhutan
* China
* India
* Myanmar
* Nepal
* Pakistan

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