Research News, Projects and Reports

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CNAS ONGOING RESEARCH PROJECTS

Responses to Population Growth in a Western Nepalese Hill Community

Investigator: Dr. Dilli Ram Dahal

The study focuses on a Nepal based test of Boserup's hypothesis with the following objectives:

i. to describe the relationship between population growth and subsistence resources availability in a hill peasant society of Western Nepal including assessing longitudinal consequences of population growth and subsistence resource fluctuation;

ii. to examine how social, economic and demographic factors affect the relationship between population growth (size) and subsistence resources.

Communication and Information Needs of Rural Nepal A Study with Special Reference to the Female Population of the Rajbansi and the Dhimal Communities of Jhapa

Investigator: Dr. Subhadra Subba

The study is based on the idea that most of the female population of many ethnic groups in Nepal is isolated and ignorant of any development programs and messages. The objectives of the study are as follows:

i. to examine this basic assumption and identify the communication and information needs;

ii. to find out the validity of the statement in the context of the Rajbansi and the Dhimal communities.

China and Regional Order in South Asia

Investigator: Mr. Dhruba Kumar

The basic objectives of this study are as follows:

i. to investigate the implication of the "Indian Security Doctrine" on the countries of South Asia and their responses towards it;

ii. to attempt at locating China's policy priorities and analyse Beijing's strategic interests in the region;

iii. to examine the constituent elements of regional conflict, the attendant interests and roles of superpowers and China's conflict and cooperation in determining the prospects of a viable regional security order.

Nepalese Diplomacy

Investigator: Mr. Sridhar K. Khatri

The objectives of the study are as follows:

i. to fill the lacuna in the study of Nepalese foreign policy;

ii. to examine the mechanism of Nepalese diplomacy, the role of intellectuals, pressure groups and the press in the formulations of such policies;
iii. to analyse the trends of the Nepalese diplomacy in recent times both on the bilateral level and within the South Asian Regional Cooperation arrangement.

State Politics in India and its Implications for Nepal

Investigator: Mr. Krishna Prasad Khanal

The objective of the proposed study is to explain and analyse the socio-economic and political implications of the politics of the Indian states namely U.P., Bihar, and West Bengal for Nepal.

(from CNAS Newsletter 4/10/84)

*TRIBHUVAN UNIVERSITY RESEARCH PROJECTS*

Research Division's Activities

Foreign Researchers Affiliated with T.U.

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Project</th>
<th>Objectives</th>
<th>Institution</th>
</tr>
</thead>
</table>
| Duplisea, Jane Ellen     | Child Health and Socio-Economic Environment in Rural Nepal. | (1) To provide baseline data on the health status of children during the rainy season in a rural Nepali community.  
(2) To determine the relationship of selected housing indices to household food availability and child health in rural Nepal.  
(3) To determine whether physical characteristics of housing may be used as socio-economic indicators of nutritional status. | Institute of Medicine, T.U., Maharajgunj. |
| Ganszle, Martin Wolfgang and Garlinda Ganszle | History of the Mewahang Rai | Ethnographic and historical research among a Rai subtribe. | Research Centre for Nepal and Asian Studies, T.U., Kirtipur |
| Quigley, Declan          | The History and Social Organization of Shrestha in Nepal | (1) To add to the general ethnograph of Nepal at a time when social and economic institutions are undergoing rapid change; this is particularly marked among Shresthas who are among the mobile sector of the population.  
(2) To compare the urban nature of Newar social organization with that of studies of caste societies elsewhere which are typical of rural communities.  
(3) To analyse the social cohesion of Newars from the perspective of established theories in sociology. | |

T.U. Research Projects

Curriculum Development Centre, Teku, Kathmandu

Researchers: Narendra Acharya, Ganga Prasad Upreti, Bodhraj Kaphle, and Kedan Bishnu Ganesh Nyaupane
Objective: To develop helpful teaching materials to give a systematic and standard form to the study and teaching of compulsory Nepali at intermediate and diploma levels. (Original in Nepali)

Institute of Science and Technology: Natural History Museum, Tribhuvan University, Swayambh, Kathmandu

Khanal, Bhauja
Butterflies of Kathmandu (Manuscript)

Shrestha, Rajendra Lal and Karan Bahadur Shrestha
Nepal Ko Sarpaharu (Book)

Shrestha, Keshab
Nepali Names for Plants (revised edition).

Research Centre for Nepal and Asian Studies (CNAS)

Researchers: Bista, Dor B., Prayag R. Sharma, Dhanavajra Vajracharya, Navin K. Rai, Durga P. Ojha, Jagaman Gurung, Ramesh Dhungel, Ram B. Chhetri, and Sudarshan Adhikari

Objectives: (1) To acquire first-hand scientific knowledge about Mustang by an interdisciplinary research team consisting only of Nepalese experts, and to present the state-of-the-art of Mustang from a Nepalese perspective.
(2) To submit a comprehensive proposal to the National Planning Commission (NPC) on the problems and prospects of development in Mustang and to encourage the NPC to incorporate the recommendations in its subsequent planning.
(3) To train junior Nepalese researchers to carry out disciplinary and interdisciplinary, individual and group researches.

Researchers: Dahal, Dilli R., and Chaitanya Mishra

Project: Study on the Relationship between Fertility Behaviour and Size, Structure and Functions of the Family/Nepal

Objectives: (1) To identify factors conducive or antecedent to the acceptance of family planning which lead to decline and differentials in fertility.
(2) To analyse the effect of family planning practice on family size and on the family life-cycle.
(3) To analyse the effects of changes in the demographic characteristics on the structure and functions of the family.

Tribhuvan Multiple Campus, Tansen, Palpa

Researcher: Poudel, Hiramani Sharma

Project: Parbat dialects

Objectives: (1) The main differences among different dialects spoken by different dialect groups in Parbat district (Khas bhaashaa)
(2) The development (and management) of grammar and composition of the productive elements that seem active in the creation of dialect.
(3) The collection and transformation (change?) of phonetics of the new words of the dialect.
(Original in Nepali)
Research Activities of Other Agencies

**Division of Plant Pathology, Khumaltar, Lalitpur**

**Researchers:** Dongol, R.H. and Sharala Sharma  
**Project:** Nepal Disease Screening Nursery  
**Objectives:**  
1. For a successful wheat breeding program continuous supply to disease resistant lives will be useful.  
2. Identification of disease resistant material in different agroclimatic conditions of the country.

**Researchers:** Dongol, R.H. and Sharala Sharma  
**Project:** Efficacy of Different Doses of Bitavaxzoo and Bavistin Against Loose Smut with Special Study on Loss Assessment  
**Objective:** To identify the most economical and effective doses of Vitavaxzoo and bavistin for the control of loose smut of wheat with special attention to the loss assessment.

**Researchers:** Dongol, R.H. and Sharala Sharma  
**Project:** Screening of Different Varieties Lives, Cultivar Against Loose Smut Disease of Wheat  
**Objective:** To find resistant lives against loose smut disease of wheat.

**Researchers:** Dongol, R.H. and Sharala Sharma  
**Project:** Effect of Different Doses of Different Chemical on Leaf Blight Disease of Wheat  
**Objective:** Different doses of different chemical will be tested to control the disease.

**Researchers:** Dongol, R.H. and Sharala Sharma  
**Project:** International Nursery  
**Objective:** To facilitate in obtaining world wheat germplasm and selecting wheat resistant material to be used for breeding and other purposes.

**Researcher:** Joshi, Sharada  
**Project:** Loss Assessment Due to Rust Disease of Soybean, caused by Phakopsora Pachyrhizi Sydow  
**Objective:** To find out the approximate economical losses due to rust disease.
Joshi, Sharada
Project: Screening Soybean Germplasms Against Major Diseases
Objective: To find out disease resistant varieties together with good agronomic character.

Joshi, Sharada
Project: Studies on Race Identification of Cercospora Sopina
Objective: To find out the race prevailing in Nepal.

Joshi, Sharada
Project: Study on the Legume Hosts of Soybean Rust, Phakopsora Pachyrhizi
Objective: To find some legume hosts that can hibernate soybean rust.

Joshi, Sharada
Project: Fungicidal Trial Against Frog Eye Leaf Spot Disease of Soybean
Objective: To find the best use of single application of fungicides to control seed borne nature of fungus cercospora sojina.

Manandhar, Keshari and Gyanu Gurung
Project: Varietal Screening Against Common Rust, Stalk Rot and Cob Rot Diseases of Maize
Objective: To determine the field resistant materials against rust, stalk rot and cobrot diseases of maize.

Manandhar, Keshari and Gyanu Gurung
Project: Loss Assessment Due to Cob Rot Diseases of Maize
Objective: To find out the approximate economical loses due to Fusarium ear rot.

Manandhar, Keshari and Gyanu Gurung
Project: Improvement of Population of High Altitude Maize
Objective: To find out the less susceptible (ear rot resistant) materials (families) during the process of the improvement of the maize population.

Manandhar, Keshari and Gyanu Gurung
Project: Seed Treatment Trial Against Heat Smut of Maize
Objective: To find out the effective control measures by the treatment of different fungicides.

Manandhar, Keshari and Gyanu Gurung
Project: Loss Assessment Due to Helminthosporium Turcicum
To find out the net losses due to the Northern leaf blight disease.

Manandhar, Keshari and Gyanu Gurung

Screening of Important Diseases of Finger Millet

To screen the varieties of finger millets against important diseases.

Manandhar, Keshari and Gyanu Gurung

Effect of Different Sowing Dates on the Occurrence of Common Rust of Maize

To find out the maximum incidence of common rust on maize.

Shrestha, Sunder K. and Raj Kumar Shrestha

Evaluation of Effectiveness of Different Fungicides for Controlling Tikka Disease of Ground Nut

(1) To determine effective fungicides to control Tikka disease.
(2) To assess the losses caused by Tikka Disease in ground nut production.

Shrestha, Sunder K. and Raj Kumar Shrestha

Screening of Potato Germplasm Against the Major Disease Late Blight

To select the resistant clones against the late blight.

Shrestha, Sunder K. and Raj Kumar Shrestha

Survey and Identification of Mustard Virus Disease Using Different Virological Techniques

To determine the nature of virus for epidemiological study.

Shrestha, Sunder K. and Raj Kumar Shrestha

Survey and Identification of Seed Borne Legume Virus Using Different Virological Techniques

To identify the nature of virus.

Shrestha, Krishna

Investigation of Seed-borne Diseases of Various Crops of Nepal National Service Program

(1) To investigate the important seed-borne diseases associated with the seed of various crops.
(2) To transfer the technical know-how to the farmers in controlling disease from seed-borne disease occurring in their crops.

Shrestha, Krishna

Study of Storage Fungi on Cereal Grains Stored by the Farmers
Objectives: (1) To determine the degree of storage fungi on cereal grains.
(2) To find out the loss assessment due to storage.

Researchers: Shrestha, K., G. Parajuli, and Ram Devi Dhawa

Project: Efficacy of Different Fungicides Against Leaf Spot of Alternaria of Radish Through Seed Treatment

Objective: To find out the appropriate fungicide against leaf spot of radish.

Researchers: Shrestha, K., G. Parajuli, and Ram Devi Dhawa

Project: Efficacy of Different Fungicides Against Downy Mildew of Cauliflower Through Seed Treatment

Objective: To find out the appropriate fungicide against downy mildew on cauliflower.

Rice Pathology (1982-1984)

Researchers: Thapa, Birendra Jung and Heera Kaji Manandhar

Project: Rice Blast Nursery

Objectives: (1) Mapping the pathogen pattern of the fungus.
(2) Identifying the best resistant donors for the use of the rice breeder.

Researchers: Thapa, Birendra Jung and Heera Kaji Manandhar

Project: Efficacy of the Different Fungicides on the Control of Rice Blast Disease

Objective: To get effective fungicides against blast disease.

Researchers: Thapa, Birendra Jung and Heera Kaji Manandhar

Project: Rice Blast Nursery

Objectives: (1) To identify varieties and breeding lines with wide spectrum and stable resistance to the Blast fungus.
(2) To develop a usable international set of differentials.
(3) To obtain information on race patterns in rice growing countries.

Researchers: Thapa, Birendra Jung and Heera Kaji Manandhar

Project: Efficacy of Different Seed Treatment Fungicides on Controlling Rice Blast Disease at Seed Bed Stage

Objective: To get effective fungicides for seed treatment against blast disease to the seedlings before transplanting.

Researchers: Thapa, Birendra Jung and Heera Kaji Manandhar

Project: Economical Dose and Optimum Number of Applications of Kitazin 17% Granules Against Blast Disease

Objectives: (1) To find out the optimum economical dose of kitazin 17% Gr.
(2) To find out the optimum number of applications of kitazin 17% Gr.
Mushroom Production Program

Project: Selection of Strains of Agaricus Bisporus
Objective: To find out the suitable strain of Agaricus to Cultivate in Kathmandu Valley.

Project: The Cultivation of Agaricus Bisporus on Synthetic and Natural Compost Medium
Objective: To determine the effect of different compost on the production of Agaricus Bisporus.

Project: Study on Disease of Agaricus Bisporus
Objective: To find out the important diseases on the cultivation of Agaricus in Nepal.

Project: Economical Spawn Production of Volvariella Volvacea on Heat Resistant Polythene Materials
Objective: To find out the feasibility of the spawn production on polythene material to make it easy to transport to the Terai.

Project: Cultivation Technique of Shiitake Mushroom (Lentiness Edodes)
Objective: To study the feasibility of Shiitake cultivation in Kathmandu Valley.

Project: Compact Bag Method of Cultivation of Pleurotus Sajorcajn
Objective: To find out the economical production of pleurotus on polythene of other bags.

Project: Cultivation Technique of Paddy Straw Mushroom
Objective: To study the feasibility of the cultivation of Paddy Straw Mushroom at Kathmandu.

Janak Education Materials Centre, Sanothimi, Bhaktapur
Researchers: Dali, Lokesh Raj and Subarna Man Pradhan
Project: Development and Production of Electricity Kits
Objective: To produce teaching aids for teaching electricity for school level, so that students can grasp the subject matter more easily.

Panchayat Development Training Center, Pokhara
Researcher: Hareram Pant
Project: Objectives in the Training of Drinking Water Technicians
Objectives: (1) To collect information about the skills of trained drinking water supply technicians.
(2) To study the influence of the curriculum and training methods in their education.
(Original in Nepali)

Researcher: Man Bahadur Pun
Project: Evaluation of the Training of Village Panchayat Secretaries and Local Multipurpose Development Workers

Objectives:

1. To find out whether the subject matter included in the curriculum and training materials of the village panchayat secretaries are sufficient and timely in respect to suitability and practicability.

2. To make suggestions accordingly.

(Original in Nepali)

(from Research Bulletin, Vol. 9, No. 4)

*MUSTANG INTEGRATED RESEARCH PROGRAM PRESENTATION IN AUDIENCE WITH HIS MAJESTY KING BIRENDRA

His Majesty King Birendra graced a presentation by researchers of the Mustang Integrated Research Program (MIRP) at the Narayanhity Royal Palace on August 3, 1984.

MIRP is a multi-disciplinary research project being undertaken by CNAS to study four important aspects of the Lo (Upper Mustang) Region: economy, anthropology, history and archaeology. The program is funded by the International Development Research Centre (IDRC), Canada. (CNAS Newsletter 1/1/84; 2/4/84).

Mr. Khadga Bikram Shah, the Executive Director of CNAS, introduced the MIRP researchers to His Majesty the King and His Royal Highness Prince Dhirendra and led the discussion by outlining the scope and objective of the program.

Dr. Durga Prasad Ojha described the physical environment and the economic condition of Lo, including its economic interaction with the Tibet Autonomous Region of China. Dr. Navin Kumar Rai presented the research findings of the people and culture of Lo emphasizing, in particular, the local social and political structures. Mr. Dhanavajra Vajracharya presented the history of the Lo Region and explained its historical relations with the neighbouring principalities of Western Nepal and Tibet. Prof. Prayag Raj Sharma discussed the cultural heritage of Lo, with particular focus on the art and religion of the region.

The presentation was concluded by Prof. Dor Bahadur Bista, coordinator of the program, by highlighting the academic importance of the study in the Lo Region and its implications to the development of the area.

His Majesty took a keen interest in the field research findings of the program and commented on its potential contribution to the development of the Lo Region in particular and the Himalayan Region of Nepal in general.

(From CNAS Newsletter 4/10/84)

*PROJECT: LIVES OF STRUGGLE IN NEPAL

Researcher: David Seddon
School of Development Studies
University of East Anglia

Sponsored by: The Nuffield Foundation, U.K.

This project will be based on existing materials and data rather than on primary fieldwork, and will attempt, among other things, to re-examine fieldwork data collected during the course of a major research project in west central Nepal carried out by members of the Overseas Development Group (Norwich) during 1973-75. The focus will be on the material conditions of the landless, sub-marginal and small peasant producers of the region and on the agricultural and urban workers of the region; land tenure, productivity and agricultural output, household income and expenditure, food consumption and nutrition, ill health and indebtedness and efforts to improve the conditions of life through individual or collective struggle will be the major concerns. Any materials or research reports relating to these
subjects from other Nepal researchers will be gratefully received, acknowledged and incorporated with full recognition in the final report.

*PROJECT: THE STRATEGIES OF ECONOMIC DEVELOPMENT IN NEPAL*

Researcher: Wang Hongwei
Institute of South Asian Studies
Chinese Academy of Social Sciences and Beijing University

The researcher is now in Nepal, as a visiting fellow at the Center for Nepal and Asian Studies, Tribhuvan University, for two months (until about the end of April). The research will also entail a visit to the USA.

*PROJECT: PASTORAL NICHES IN THE WESTERN HIMALAYAS (JAMMU & KASHMIR).

Report by: Aparna Rao and Michael J. Casimir
Institut fur Volkerkunde
Universitat zu Koln

In most parts of the western Himalayas animal husbandry contributes in some measure to the economy of rural and semi-rural households. The extent to which a family depends for its subsistence on livestock varies according to locality and the specific community. In a montane environment with a rapidly increasing human and animal population, an obviously limited and relatively constant amount of cultivable land, and steadily shrinking grasslands, growing pressure on basic natural resources is inevitable. Data presented here represent a few basic results of an ongoing research project on the pastoral niche in a part of the western Himalayas, which has to date been fairly neglected by social scientists. This study is being conducted in parts of Jammu and Kashmir, east of the ceasefire line between India and Pakistan (Rao & Casimir 1982) and uses a holistic approach to study certain subsistence strategies and the place of certain communities "... in the total environment, its relations to resources and competitors." (Barth 1956a: 1079)

The Setting
Although for administrative purposes Jammu, Kashmir and Ladakh constitute one single state within the Indian federal union, there are great variations in the topography of the various parts of this state. There are also marked differences in the vegetation. Following Schweinfurth (1957), the Jammu region, at the foothills of the Siwalik range, may be classified into two levels: the lower, colline level with a subtropical thron steppe vegetation and evergreen sclerophyllous woodlands, and the higher level characterized by Pinus roxburghii. The vegetation of the Kashmir Basin, beyond the Pir Panjal, is characterized by a submontane plant formation known as the Kashmir shrub (Meusel & Schubert 1971: 424-432). The montane (ca. 2500m), altomontane (ca. 3000m) and subalpine (ca. 3600m) zones of the southern Great Himalayan Range, north of the Kashmir Basin, comprise different forest types and plant communities (cf. Meusel & Schubert 1971: 582). Finally, the vegetation of Ladakh is characterized by various plant communities typical of high altitude cold steppes and deserts.

The traditional inhabitants of each of these three regions also exhibit great differences in language, religion and social organization. In addition, there are important seasonal fluctuations in the human and animal population composition of each of these three regions. The state as a whole is affected primarily in summer by immigration through, for example national and international tourism and the influx of peripatetics and migrant labor from other parts of India; in winter there is certain emigration of labor and tradesmen. Each of the three regions comprising the state, and even each district, especially in Jammu and Kashmir is deeply affected by seasonal, inter-regional or short distance intrastate immigration and emigration. The intrastate migrants are partly landless villagers seeking jobs, notably in tourist resorts, but the bulk consists of individuals or families who drive various types of livestock to appropriate pastures. As in many (Gillet 1983), but not all (Goldstein & Messerschmidt 1980) high altitude areas of the world, here too verticality is the main form of pastoral resource exploitation.

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1. This research is being conducted under the auspices of the Institut fur Volkerkunde, Universitat zu Koln, the Department of Anthropology, University of Delhi and the Deutsche Forschungsgemeinschaft.
The herds consist of sheep, goats, cows, buffaloes, yaks, or a combination of any of these; the herders are individuals and families belonging to different communities. Most families and communities tend only their own animals throughout the year (type 1 in Table I), but some integrate the livestock of other families for a given period of time into their own flocks (type 2 in Table I) in return for payment in cash or kind.

Still others work exclusively, for at least part of the year, as hired shepherds or cowherds (type 3 in Table I), or participate in a rotational system of mutual help in shepherding (type 4 in Table I). Hence in terms of ownership the composition of the herd or flock tended — as also the rights over the milk and the milk products — vary greatly. This is partly community-specific, but can also be observed within each of the communities and depends on factors such as an individual’s economic situation, the labour potential of his household, his links of friendship with inhabitants of other localities, his access to pasture, and so on. Individual herd compositions in terms of ownership can also vary from year to year.

Several communities, the majority of whose members traditionally derive at least 50% of their annual subsistence by tending their own or others’ livestock and use geographical mobility as a pastoral strategy, were identified in Jammu and Kashmir. These are: certain sections of the Gojar community (cf. also Table II), certain Syed and Pathan families and the occupational group of Pohol, also known as Chohan or Gaddi according to the specific locality and religion (Rao & Casimir in press, Uhlig 1973; cf. also Khajuria 1981: 176). These Gaddi are not to be confused with those of the neighbouring state of Himachal Pradesh. In addition, in summer many sedentary Kashmiri villagers, living throughout the year at altitudes above approximately 2000 m in the Kashmir Basin, often tend the cattle and horses of other sedentary Kashmiris living at lower altitudes not very far away. Table I indicates the broad ownership patterns of the herds tended by mobile sections of pastoral communities in Jammu and Kashmir. Each of these exploits only part of the total environment; its strategies are influenced not only by the ecological settings, but also by the presence of the others and the attempts of each of these to optimize subsistence strategies. The following is a brief and purely descriptive account of the principal subsistence strategies and annual economic cycles of the mobile and mainly pastoral sections of the Gojar in Jammu and Kashmir. The seasonal interactions among these sections and other communities in the area should be viewed against the theoretical perspective that groups or people "... learn their niches." (Colinvaux 1982:394) For the Gojar this perspective is particularly pertinent, since, as we shall shortly see, they are relative newcomers to Jammu and Kashmir.

The Gojar: Overview and Classification

The Gojar live in a large portion of southern Asia (Figure 1) and yet surprisingly little is known about their social and economic organization. It is known, however, that their contemporary economic strategies range from totally sedentary agriculture to entirely mobile pastoralism, depending on the locality and the section of the community (cf. Beames 1980, Bingley 1978, Ibbetson 1974). It is generally believed (Enzykli. Islam 1960:1122) that the Gojar — along with the Jat and the Rajput, two other major communities of the area — are descendants of Scythians who entered the region in the 2nd and 1st centuries B.C. The Gojar, who were classified by the British as one of the so-called "martial races" (cf. MacMunn 1979) are also often held to be descended from the Gurjara, known to Arab historians as al-Djuzar, whose empire embraced large parts of the Indian subcontinent in the 9th century A.D. (cf. Munshi 1955). Originally perhaps Hindus, many sections of the community adopted Islam at indefinite periods and under unknown circumstances; many also became Sikhs. Today, Gojar in Afghanistan, Pakistan, Jammu and Kashmir, parts of Himachal Pradesh, Uttar Pradesh and Punjab are Sunni Muslims; the rest are Hindus or Sikhs. Whatever its religion, each local Gojar community is subdivided into various social categories, bearing distinct names, but known altogether as zat, got or khel depending on the locality and the primary terminology of social organization prevalent among its local dominant neighbours. Irrespective of locality the names of each of these social subdivisions are often the same and are sometimes shared by neighbouring Jat, Rajput or Pashtun communities.

The Gojar are generally held to have first entered Jammu and Kashmir from the Panjab and the North West Frontier Province of Pakistan. According to sources cited in the Census of India 1941 (Kashmir Part II: 9-11), the gojar now living in Jammu and Kashmir "... are part of two separate migrations, one direct from the Gujara tribes of Rajputana, Gujarat and Kathiawar, the other, and later migration, from the Gujjar tribes settled in the Panjab." Successive wars and general unrest in the entire area till the early years of this century led to the dislocation of various segments of the local population; the Gojar were no exception. Statements of certain informants, as well as archival documents, suggest that gradually many Gojar moved further east and south to Gilgit and into the Kashmir Valley. In 1947 when the independent states of India and Pakistan came into being, Gojar found themselves on either side of the border. It is likely that different waves of migration and the various phases of
Table I  The broad ownership patterns of the herds tended by mobile sections of pastoralists in Jammu & Kashmir.

<table>
<thead>
<tr>
<th>COMMUNITY</th>
<th>Only own animals</th>
<th>Mainly own animals and some others' (payment in cash or kind) from:</th>
<th>Mainly others' animals and some own (payment in cash or kind) from:</th>
<th>Rotational mutual help in shepherding (same community)</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Same community</td>
<td>Other pastoralists</td>
<td>Sedentists</td>
</tr>
<tr>
<td>BAKRWAL</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
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<tr>
<td>BANIHARA</td>
<td>*</td>
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<tr>
<td>VALLEY GOJAR</td>
<td>*</td>
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<tr>
<td>GOJAR-BAKRWAL</td>
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<tr>
<td>PATHAN</td>
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<td>SYED</td>
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<td>POHOL/CHOPAN</td>
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<tr>
<td>POHOL/GADDI</td>
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</tbody>
</table>

* mainly  * sometimes  * rarely
Fig. 1 Rough distribution of Gojar in South Asia.
displacement, followed by attempts at optimizing their new ecological and socio-economic adaptation have gradually led to the emergence of at least the five following sections of Gojar in Jammu and Kashmir. Three of these (iii and iv) are known locally by distinct names; of the remaining two (i) is ii, known either as Kandi Gojar, or simply as Gojar, while (v) is known only as Gojar.

(i) Gojar living throughout the year in the areas of Jammu, Reasi and Rajouri as sedentary agriculturalists and practicing a limited degree of sedentary or transhumant cattle breeding;

(ii) Banihara, or Dodhi Gojar, who are primarily nomadic or transhumant buffalo breeders;

(iii) Gojar-Bakrwal, who spend the winter in and around Poonch and are partly sedentary and partly transhumant sheep and cattle breeders;

(iv) Bakrwal, who contain certain non-Gojar elements, and are overwhelmingly nomadic goat and sheep breeders. Some are now transhumant with, in addition, cows.

(v) Gojar who spend the whole year in the Kashmir Valley and are primarily transhumant cow and buffalo breeders; in certain areas, wealthier families depend increasingly on agriculture for subsistence.

Since all these Gojar families spend the entire year in the Kashmir Valley, we shall refer to them henceforth as the Valley Gojar.

In Table II the primarily mobile sections of the above mentioned Gojar community are classified in terms of their degree of mobility, the composition of their own herds and their degree of land ownership. In the area between Poonch in the west and Jammu in the east, the three terms Gojar, Gojar-Bakrwal and Bakrwal lie on a multi-dimensional socio-economic scale, and the classification of a given family in one of these three sections is determined by the absence or presence of landholdings, and depends also on whether one has buffalos, sheep or goats. A combination of these factors, which can vary over the years for each individual family below a certain financial threshold, also determines an individual's social status and weight in local politics.

Although for administrative purposes and issues of national policies these various Gojar sections are not officially distinguished, the differences among them influence micro-level politics; they also play an important role in both rural and urban socio-economic interactions in the entire region. Although each of these sections claims to be Gojar and also recognizes the claims of the others to this common appellation, each of them is preferentially (and in reality, overwhelmingly) endogamous and there are major differences in social organization. The geographical distribution of each section in summer and winter is also distinct, although a certain overlapping does exist. There are distinct, dialectical variations in the speech of each section and dress and headgear also act as boundary markers to some extent. Notwithstanding these differences, in all population censuses of the area only type (iv), namely the Bakrwal, have been distinguished on the basis of language difference.

SUBSISTENCE PATTERNS AND ANNUAL CYCLES:

The Banihara
As shown in Figure 2, the Banihara, or Dodhi-Gojar spend both summer and winter mainly in the eastern parts of Jammu and Kashmir. Formerly in winter most families crossed over to the southern state of Panjab, and several families still do so; certain informants also reported having relatives in Uttar Pradesh (cf. Hassan 1981). Since they spend at least half of each year outside the boundaries of the federal state of Jammu and Kashmir, many Banihara, unlike the other Gojar, have no rights of citizenship in Jammu and Kashmir; consequently, they are neither included in the state census, nor can they cast their votes.

Till some twenty years ago most Banihara drove their buffalos every summer to the subalpine pastures in the regions of Doda, Bhadarwah and Kishtwar. There each family had its time honoured pasture rights. Gradually, a few of the wealthier families acquired land in the area of Ramban and started spending winters there, while others continued to migrate to Panjab. In the early 1970s this pattern was disrupted by the establishment of a State Government sheep breeding farm in Bhadarwah, in traditional Banihara pastures. After some initial resistance, many Banihara lost their traditional grazing rights there and were compelled to look for pastures elsewhere. Most of them now sought summer pastures beyond the Pir Panjal Range in the Kashmir Valley, while a few moved further North of Kishtwar. At about the same time increasingly modern and intensive agricultural practices in the Panjab made it harder for Banihara wintering there to find fodder. As a result several hundred families once again started spending the winter within the boundaries of Jammu and Kashmir, around the towns of Jammu and Kathua. Those who had retained their summer pastures in Bhadarwah continued to use them; the rest went to the Kashmir Valley. In the mid-seventies the development of
Tab. II  Primarily mobile sections of Gojar classified in terms of composition of their own herds, degree of land ownership and degree of mobility (N = nomadic, T = transhumant, S = sedentary).

<table>
<thead>
<tr>
<th>ANIMALS</th>
<th>NO LAND</th>
<th>SOME LAND</th>
<th>LARGE LANDHOLDINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only buffaloes</td>
<td>BANIHARA (N)</td>
<td>BANIHARA (T)</td>
<td>BANIHARA (T)</td>
</tr>
<tr>
<td>More buffaloes and cows than sheep and goats</td>
<td>-</td>
<td>BANIHARA (T/S)</td>
<td>-</td>
</tr>
<tr>
<td>More buffaloes than sheep and goats</td>
<td>BANIHARA (N)</td>
<td>BANIHARA (N/T)</td>
<td>-</td>
</tr>
<tr>
<td>Only some sheep and goats</td>
<td>BAKRVAL (N)</td>
<td>BAKRVAL (N/T)</td>
<td>-</td>
</tr>
<tr>
<td>Many sheep and goats</td>
<td>BAKRVAL (N)</td>
<td>BAKRVAL (N/T)</td>
<td>-</td>
</tr>
<tr>
<td>Sheep, goats and cows</td>
<td>-</td>
<td>BAKRVAL (N/T)</td>
<td>GOJAR-BAKRVAL (T/S)</td>
</tr>
<tr>
<td>More sheep and goats than buffaloes and cows</td>
<td>-</td>
<td>GOJAR-BAKRVAL (T)</td>
<td>GOJAR-BAKRVAL (T/S)</td>
</tr>
<tr>
<td>Cows, buffaloes and sometimes some sheep</td>
<td>-</td>
<td>VALLEY-GOJAR (T)</td>
<td>VALLEY-GOJAR (T/S)</td>
</tr>
</tbody>
</table>
Fig. 2: The principal summer and winter areas of the Banihara.
a state cattle farm near Jammu led to the next major change in Banihara migration patterns. While a few families got employment in this farm and hence became sedentary, others acquired land nearby and became transhumant agro-pastoralists. Still others started spending the summer months in the vicinity, instead of going to Bhadarwah or the Kashmir Valley, thus drastically affecting traditional herd management patterns and reducing migration time from some two months in a year to a week at the most.

Table II indicates that the Banihara are buffalo breeders. The sale of buffalo milk and milk products appears always to have been their principal means of livelihood. For most families buffaloes also serve as the main pack animals. It appears, however, that the buffalo was introduced into the Kashmir Valley only around 1900, although it was known in Kishtwar in the early 19th century (Rothfeld 1918:121). Depending on the number of lactating buffaloes a family owns, milk is processed throughout the year to make and sell clarified butter and a kind of fresh cheese. While these products are both for household use and for sale, buttermilk, a byproduct, is exclusively for household use. Yoghurt is neither consumed nor sold. Milk and milk products are sold to sedentary populations for cash in urban areas; in rural areas they are sold for cash, or exchanged for cereals (calculated on cash value). Whereas the sale of milk and milk products is undertaken by both men and women, milking is primarily, if not exclusively, a male task. Milk is, however, processed only by the women. Female buffaloes are weaned at three years of age, but males are often starved to death. Mating takes place in December and the young are born in October, shortly before or during the autumn migration. Newborn males are often sold for meat in and around the summer pastures. Like the Valley Gojar and the Bakrwal, the Banihara rarely eat meat; cereals and milk products are the main elements of their diet throughout the year; in summer this is supplemented by wild vegetables gathered in the summer pastures, and in winter vegetables are often bought in the local markets.

The spring migration takes place in mid-April and the migration back to winter quarters between mid-September and mid-October. Generally fodder is bought in the villages along the way, and on the spring migration an official grazing tax is paid at fixed forest check posts. Unlike pastoralists in many parts of the world, animal husbanders in Jammu and Kashmir today move in small units. Among the Banihara these units may consist of a single nuclear family or two or three such families linked through descent or matrimony. Unlike most Valley Gojar and the Bakrwal, however, among the Banihara the whole family and the entire herd move together. When crossing busy highways they travel at night to avoid heavy vehicular traffic, but night halts under a tree or rock shelter are more common. If it rains, large woollen shawls bought from the Bakrwal are used for protection.

By mid-November the Banihara reach their winter areas, which are fairly densely populated agricultural regions where rice, wheat, maize, mustard and sugar cane are the principal crops. Although most families have no specific grazing rights here, they tend to go to the same localities each year. The farmers there still depend largely on natural manure and thus the Banihara buffaloes with their large quantities of rich manure are welcome on the fallow fields. After the rice harvest, rice straw is also available in abundance and the Banihara buy large amounts, partly as winter fodder and partly to thatch their winter huts.

Winter is a more strenuous work period than summer. While in summer the buffaloes forage, in winter they have to be largely stall fed. Fodder procurement and preparation is a complicated and expensive affair. Rice straw has to be mixed with very fine wheat straw bought from local farmers; cotton and wheat seeds, crushed mustard husk, etc., have to be bought in nearby markets and added to the fodder mixture. The stalls have also to be cleaned regularly and fresh grass collected; the women have to make dung cakes for fuel and often walk long distances to fetch water.

In general, throughout the year all the animals are kept together at or near the family's place of residence which usually changes only twice each year. But families who have started migrating in summer to the Kashmir Valley only recently have had to adapt their residence and herd management patterns in summer to local ecological and economic circumstances. Since they have no traditional pasture rights in the Kashmir Valley, they have to use pastures belonging to individuals of other communities. As pastures in the vicinity of big villages or small towns are scarce, families have to split up with the cowherds taking the non-milch buffaloes up to the alpine pastures, and the rest of the family remaining with the milch animals at pastures located at a couple of hours walking distance from the nearest markets. The alpine and subalpine pastures surrounding the Kashmir Valley have for long been the traditional summer grazing areas of the local transhumant Valley Gojar, the Bakrwal entering the Valley in summer, the Pohol and, to some extent local Kashmiri villagers. In more recent years, in addition, some pastures have been entirely closed to grazing by the State's Forest Department, either because of extensive overgrazing or for the protection of wildlife. Banihara
families thus depend increasingly on villagers or other pastoralists for pasture. The Gojar and Kashmiri pastures are the most convenient for them, first of all because they are at the lowest altitudes and hence not very far from marketing areas. Secondly, since they themselves generally do not have tents or other transportable shelters, they can live in the semipermanent blockhuts (cf. Piggott 1944) the Valley Gojar always build on their pastures. The Valley Gojar usually have several summer pastures at varying altitudes, and when they leave their lowest pastures, the Banihara move in. However, transactions regarding grazing rights and the use of blockhuts do not always work out smoothly and conflicts do arise.

The Valley Gojar
Figure 3 indicates the present distribution of the Valley Gojar in summer and in winter in and around the Kashmir Valley. The first official records of their land holdings in the valley date from the first Permanent Land Settlement implemented by the British colonial officer, Sir Walter Lawrence between 1889 and 1912. The Valley Gojar depend primarily, however, on their cows and buffaloes; some also have a few sheep and goats. Unlike the Banihara they sell no milk except to occasional tourists, and their cash income derives from the sale of butter or clarified butter; increasingly, in addition they make and sell a kind of fresh cheese. Whereas butter and clarified butter are sold by weight to Kashmiri traders who visit individual Gojar families each Thursday or Friday throughout the summer months, cheese is sold to these traders, to Kashmiri villagers and Indian tourists in holiday resorts located near some of the lower summer pastures. Each spring most Gojar families borrow money from traders, or buy on credit and these debts are paid off over the summer months by selling the milk products. Unlike the Banihara buffaloes, the animals of the Valley Gojar yield very little milk in the winter months and hence, milk can be processed only in summer. Also Gojar men rarely milk their cattle, but as among the Banihara, here also milk is processed exclusively by women.

The agricultural land owned by the vast majority of the Valley Gojar is unirrigated and the soil is fairly stony; the quality and quantity of the harvest depends entirely on rainfall and snow melt. Most Gojar fields and homesteads are situated at a fair distance from Kashmiri villages and above these, but in some areas, in recent years, Kashmiri villagers have also encroached on mountain slopes and in certain places Gojar settlements find themselves sandwiched between two levels of Kashmiri farming and habitation. 2000 m is the approximate upper limit for rice cultivation in the Kashmir valley (cf. also Lawrence 1981:327), and the vast majority of Gojar landholdings are located above this altitude. All Gojar grow maize, which is also their staple; a few also grow buckwheat and in certain areas richer families may also grow potatoes, mustard and walnuts.

The agricultural cycle begins in spring with the sowing of maize. After this, the entire family, or at least the majority of its members, leaves the winter villages and moves with their animals to their respective summer pastures. Most families have pastures at different altitudes and they build semipermanent blockhuts, made of solid logs, in each of these. They return to these huts each year at about the same time, and occasionally some horticulture is also practiced at the lower pastures, near the huts. The summer pastures are considered the property of individual families. These territorial rights are recognized not only by other Gojars, but also by all other migratory herdsmen and animal husbanders in the area.

As the snow thaws progressively in the higher altitudes, each Gojar family shifts higher and higher. The entire family, however, rarely shifts to the uppermost hut in the midst of the best alpine pastures (ca. 3500 m) where, generally, hired cowherds or a few of the adult or adolescent male members of the family tend the nonmilch cattle. Most of the family stays with the milch cattle at lower altitudes which are more easily accessible to the Kashmiri traders who come to buy their milk products. Many of the poorer Gojar men also work as day labourers, porters, etc. to supplement their income.

Shortly before the crops ripen in the winter villages, a part of the family returns to guard the fields against eventual predators, and especially to cut grass for winter hay. Around the same time, the increasing cold in the alpine pastures compels the men to bring the non-milch cattle down to where the rest of the family awaits them. The autumn migration also takes place in stages. Actual migration time, both in spring and in autumn between the winter villages and the lowest summer pastures takes a few hours, or at the most two days in each direction. By the time the harvest actually starts in the village, the lactation period of the cattle is also nearing its end and the entire family now returns to the winter settlement.

Each Kashmiri village has its traditional grazing areas which are partly communal property. Since the Gojar are relative newcomers to the Valley, they generally do not have rights to these pastures; instead they have community grazing rights in forests near their winter settlements. In early spring,
Fig. 3  Summer and winter pastures of the Valley Gojar in the Kashmir valley and of the Kandi Gojar south of the Kashmir basin.
before the migration to summer pastures, Gojar animals graze in these forests; in autumn grass is also cut there to be stored as winter fodder. In winter the animals are mostly stall fed.

The Bakrwal

The earliest documentary reference found so far to nomadic sheep and goat breeders in Jammu and Kashmir dates back to the last third of the 19th century (Census of India 1891:164), but the first explicit mention of the Bakrwal as a distinct community was made in the early years of this century in several letters and files of the Kashmir Government. The term does not appear in the literature on Pakistan or Afghanistan, but mobile goat and sheep breeding Gojar in Swat Kohistan are known as Ajar (Van Banning 1984), a term also used by Bakrwal in Jammu and Kashmir to denote their hired shepherds. It is, however, through the Bakrwal and their history that a fairly reliable historical and ethnic link can be established between various sections of Gojar in Jammu and Kashmir, Pakistan and Afghanistan. Divided at present into two sections, the Alaiwal (or Ilahiwal) and the Kunhari, all Bakrwal claim to have entered the then princely state of Jammu and Kashmir a few generations ago from the valleys of Alai and Kunhar, in Pakistan. Barth (1956b:77) reports that certain Gojar agriculturalists now settled in the upper Swat Valley also "... came 'long ago' from Alai ...". Some of the older Bakrwal still speak a little Pashto and certain units of Bakrwal social organization are names of distinct ethnic groups in contemporary Pakistan. Figure 4 illustrates the distribution of the Bakrwal in Jammu and Kashmir today in summer and in winter. For an analysis of parts of the ecological setting of the community see Casimir and Rao (in press).

Table II indicates that the Bakrwal are primarily goat and sheep breeders. As their name implies they are still predominantly goat breeders. These goats, which are locally known as 'Kagan', are reputed to have originated in the Kagan Valley, in Pakistan (cf, however, Khan 1980:134, Wealth of India 1970:111). These goats are relatively poor milk producers, but are prized for the quality and quantity of their meat. Only rough official estimates are available of the proportion of sheep and goats in Jammu and Kashmir belonging to the Bakrwal. In 1983 the State's sheep husbandry department estimated this to be 60% to 70% of the total sheep and goat population of the state (personal communication). In the past decade meat consumption in the Kashmir Valley has risen sharply and local meat production does not meet the demand. Meat is, therefore, imported from other parts of the country and this meat is cheaper than that obtained from the Bakrwal animals. Most Bakrwal have been hard hit by this difference in prices, which has partially contributed to the impoverishment of the small and middle herdsmen.

According to the official report of the Jammu and Kashmir Government Planning and Development Department, while the sale of herd animals ensures 54.15% of the income of the Bakrwal families surveyed, the sale of animal products brings in 28.6% (PDD, n.d.: Table 27). It appears that Bakrwal economy has always depended principally on the sale of animals on the hoof; in addition, sheep's wool and goat's hair were also always important sources of income in cash and kind (cf. also FAIR 1980). Sheep are shorn thrice each year — in January, in April shortly before the spring migration and again in late August. Surplus wool is either sold to middlemen (cf. Madan 1965:145), or bartered with peasants for cereals. Since the introduction in 1934 by the state's sheep husbandry department of the Merino sheep breed, the importance of improved quality wool as a source of cash income has steadily increased. Now Government agencies also buy the superior quality wool. Goats are shorn each April. Some of the hair is kept by Bakrwal women to make pack lashings, lengths of webbing, ropes and rope net bags; the rest is sold to middlemen, who resell to carpet manufacturers. Unlike the two preceding sections of Gojar, the Bakrwal apparently never sold milk. Sheep are never milked by the Bakrwal and their only source of milk are their goats. In summer, when milk is plentiful, it is turned into butter, clarified butter and buttermilk. These are primarily for household consumption, but when there are surpluses, clarified butter is exchanged with Kashmiri farmers for maize which is the staple of Bakrwal diet. Elderly informants reported that formerly such transactions were more frequent.

Till 1947 a very large number of the Bakrwal summer pastures lay west or north-west of the Indo-Pakistan ceasefire line, but today none of the families cross the border for grazing purposes. Their present summer pastures lie in semi-alpine and alpine zones north and north-east of the Kashmir Basin at different altitudes ranging between 2500m and 4300m. Summer pastures are considered a family's territory and are an important source of conflict within the community, as well as with members of other pastoral groups. When a man dies he leaves his territories to his sons, who are then free to divide them among themselves, or keep them as joint property. The richer the family the higher the altitude of these pastures, since a family with only a few pack animals finds it difficult to carry food rations and household belongings to higher altitudes; further, the greater the altitude the slighter the chances of finding additional, non-pastoral sources of seasonal employment. As opposed to the Valley
Fig. 4 Summer and winter pastures and the broad migration routes of the Bakrwal.
Gojar and also to the Banihara, extreme differences in livestock size were noted among the Bakrwal. Herd sizes also appear to vary considerably from year to year, due to climatic factors.

The Bakrwal use mules and horses as pack animals and spend some five months each year migrating (cf. Kango and Dhar 1981). In April they leave their winter quarters in small groups and head for their summer pastures. At given state forest department checkpoints they pay their grazing taxes, and by early July each family reaches its lowest pastures in the Kashmir Valley. Fodder is increasingly difficult to find on the way, partly due to illegal encroachment in forests by local farmers and partly due to the closure by the Forest Department of certain forest areas threatened by overgrazing. Each camping unit moves individually, and since the terrain is hilly to mountainous throughout the year, Bakrwal camps are as a rule small and dispersed. In summer the majority live in white canvas tents; in winter tents are also used, but huts made of branches and reeds are more common and those with land often have rough houses.

In late August the herds are brought down from the alpine to the lower pastures and the migration back to winter quarters starts (Rao and Casimir 1983). Surplus animals are now sold, mainly to butchers, in the Kashmir Valley. Lambing takes place primarily between December and March; this is also the principal kidding season, but kids are born all through the year. In winter the herd animals are divided up according to age between one or more grazing areas. Before they arrive in the winter area, around mid-November, pastures have to be found where they can browse. These are either Government forests or fallow lands leased out to them by local peasants.

Increasingly, some Bakrwal have acquired land where they grow mainly maize and wheat. This is often dry forest land on which they have encroached progressively and often built themselves rough houses. The vast majority of these landholdings are in their respective winter areas and cultivation in summer is carried on in their absence by local Gojar tenants, poor Bakrwal relatives or servants.

Conclusion

In these descriptive notes the traditional adaptive strategies of three mobile pastoral communities have been briefly reviewed. We have shown that although the broad features of their subsistence strategies are very similar, there is variation in the detailed aspects of resource exploitation. These groups partly breed different types of livestock and partly utilize various biotopes within a given region, but at different altitudes. Since all are pastoralists, a certain degree of competition is inevitable and interaction is by no means always peaceful. In addition, pastoralists belonging to other groups referred to earlier on in this paper add to the list of competitors. However, each group has until now been relatively successful in surviving by adapting in minor detail to ecological and socio-economic circumstances, and by evolving "... a specific set of capabilities for extracting resources, for surviving hazard, and for competing, coupled with a corresponding set of needs." (Colinvaux 1982:394)

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