MOUNTAIN RESEARCH AND DEVELOPMENT, VOL. 13, NO. 1, 1993, PP. 19–39

CHALLENGE AND RESPONSE IN THE KARAKORAM: SOCIOECONOMIC TRANSFORMATION IN HUNZA, NORTHERN AREAS, PAKISTAN

HERMANN KREUTZMANN

Department of Geography
University of Bonn
Meckenheimer Allee 166
D-5300 Bonn 1
Germany

ABSTRACT Improved accessibility and attempts for integrated rural development in high mountain regions challenge the economic, social and cultural system of mountain societies. An examination of transformations in the Hunza Valley in the Karakoram shows how external interventions change the internal structure and economic conditions. Following a diachronic approach, the political and economic framework is analyzed and some aspects of recent sources of income are discussed. The decline of high pasturing, change in the traditional pattern of gender-related division of labor, and the impact of development projects indicate that the subsistence component of production has declined while diversification and increase of non-agrarian income sources have occurred. The Karakoram Highway enhances geographical mobility and exchange relations between the mountains and the plains.

RÉSUMÉ *Défi et réponse dans le Karakorum: transformation socio-économique dans la vallée de la Hunza, Pakistan septentrional.* Un meilleur accès et des tentatives de développement rural intégré dans les régions de hautes montagnes présentent un défi au système économique, social et culturel des sociétés montagnardes. Une étude des transformations qui se sont produites dans la vallée de la Hunza, dans le Karakorum, illustre la manière dont les interventions externes modifient la structure interne et les conditions économiques. Une approche diachronique est utilsée pour analyser le cadre politique et économique et examiner certains aspects de l'origine des revenus actuels. Le déclin du pâturage d'altitude, le changement dans la division traditionelle du travail parmi les sexes et l'impact des projets de développement indiquent que l'autoconsommation cède la pas à la diversification et à une augmentation des sources de revenus non-agricoles. L'autoroute du Karakorum favorise la mobilité géographique et les relations d'échange entre les montagnes et les plaines pakistanaises.

ZUSAMMENFASSUNG *Herausforderung und Antwort im Karakorum: Sozio-ökonomische Transformation und Haushaltsreproduktion in Hunza.* Verkehrserschließung und Versuche einer integrierten Entwicklung im Hochgebirge stellen eine Herausforderung für Hochgebirgsgesellschaften dar. In einer Fallstudie zum Hunza-Tal wird dargelegt, wie von außen gesteuerte Entwicklungsprozesse die inneren Strukturen einer Talschaft beeinflussen und auf die Wirtschaftsverhältnisse rückwirken. Ausgehend von einer diachronischen Analyse der polit-ökonomischen Rahmenbedingungen werden einige Aspekte der gegenwärtigen Zusammensetzung der Erwerbsquellen diskutiert. Fallbeispiele zum Verfall der Almwirtschaft, zur Geschlechterarbeitsteilung und zum Einfluß von Entwicklungsprojekten unterstreichen eine Abnahme der Bedeutung der Subsistenzlandwirtschaft zugunsten einer Diversifizierung und Zunahme der nicht-agrarischen Erwerbsquellen. Der Karakorum Highway verstärkt regionale Mobilität und Austauschbeziehungen zum pakistanischen Vorland.

INTRODUCTION

In recent years increased attention has been paid to the development problems of high mountain regions. First of all, a great number of development projects aiming at integrated rural development have penetrated the high mountains in connection with the extension of road networks. Secondly, the discussion of the *Himalayan Dilemma* (Ives and Messerli, 1989) has revealed a gap of knowledge on land degradation, erosion, and related destructive phenomena in the forelands. It has become obvious that there is a deficiency of regional studies that treat high mountain regions as a part of an overall ecological and economic system and thus contribute to a more comprehensive analysis of high mountain phenomena.

Research on exchange relations between lowlands and highlands, as well as a more detailed study of specially chosen areas, are necessary for the appraisal of development processes in high mountains. This could help to analyze the whole range of interactions between man and his environment in the high mountains and the strategies of utilization and management of marginal resources, and could provide a planning basis for the regional administration of the affected countries.

The following case study aims at depicting the economic development of one Karakoram valley over a period of two centuries, and to describe the framework of the present exchange patterns. Migration and its consequences for the local agricultural system are taken

as an example to demonstrate how socioeconomic transformations function in a high mountain region and how they are influenced by external interventions such as the construction of the Karakoram Highway, a new traffic link between the plains of Pakistan and the Xinjiang forelands via the Hunza Valley.

The collection of empirical data is based on field visits in 1981 and 1983 followed by fieldwork executed during twelve months in 1984 and 1985. Shorter visits followed in 1986, 1988, and 1989. During these periods all villages of Hunza were visited except the Chupursan Valley and Misgar which were restricted areas for foreigners. Thus, out of 43 villages 34, giving home to 93 % of the Hunza population, were covered. Residence was taken in Karimabad, the central place of Hunza and former seat of the hereditary ruler. In Karimabad, where close contacts to different households could be established, systematic observations of agricultural practices, communal undertakings, and social activities were carried out. In order to elaborate on the ethno-linguistic, economic, and ecological differentiation of the Hunza Valley and the varying degrees of its accessibility, regular visits to the neighboring villages (Figure 1) from Khizrabad to Sost and Shimshal as well as to the pasture settlements of different groups were undertaken. In addition to sample surveys in different villages, interviews with resource persons, village elders, and local teachers were conducted either in the local language, Urdu, or with the help of local interpreters. Thus village profiles could be established in order to work out regional patterns of diversity.

The extensive fieldwork period was necessary to understand seasonal variations in the utilization of ecological zones, in the workload, and in the structure of mobility. In order to determine the recent spatial resource allocation and differentiation, settlement patterns and infrastructure detailed maps on different scales were prepared.

The material of the present fieldwork has been compared with the personal records of D.L.R. Lorimer, who 50 years ago collected valuable information on the Hunza Valley, published by Müller-Stellrecht in 1979. Local scholars like Qudratullah Beg, the author of *Tarikh-e Hunza,* supplied valuable information from the first half of this century. In addition to this source the colonial records in the India Office Library and Records, London supplied data for the diachronic reconstruction of transformation processes up to 1947. Census and other reports by the Government of Pakistan, local administration, and development agencies supported the data collection in Pakistan.

NOTES ON THE DEVELOPMENT OF HIGH MOUNTAIN RESEARCH

The study of high mountain geography has a long tradition. Essential knowledge was first gained in the European Alps and used as a model for high mountain research in general. At present two main lines of investigation are generally followed:

First are studies that stress orographical and ecological features and lead to extensive terminological and classification models. Carl Troll (1941, 1975) based his comparative high mountain research upon these. In his concept of a three-dimensional synopsis (Troll, 1959, 1962) he proceeded from a narrowly defined term of high mountains as an object of research to an ecological model. The natural resource potential in different climatic zones was systematically analyzed based on vegetation cover as an indicator for ecozones. The limitation of this concept to orographically defined high mountain regions made global comparisons possible, as well as the construction of typological models and the setting up of zonation models (Rathjens, 1981, 1982; Schweizer, 1984; Uhlig and Haffner, 1984). To date, numerous studies on production and utilization systems adapted to high altitudes have incorporated this concept which stresses the seclusion of high mountains.

A second group of geographical studies on high mountains underlines the ecological and economic interrelationship between mountains and the surrounding areas, as well as their integration into larger regions. Transformation processes in European high mountains initiated the discussion of phenomena like *Bergbauernproblem* (problems of mountain agriculture) and *Höhenflucht* (outmigration from mountain valleys). Cultural-geographical studies were dominated by questions on new road networks, regional disparities, and migration patterns. Overpopulation and carrying capacity of high mountains were initially discussed especially in connection with the migration to overseas colonies and with industrialization in the lowlands, and more recent case studies have emphasized the link between carrying capacity and population growth within the Karakoram (Ehlers, 1992). Land-use competition between nomads and agriculturists in Middle Eastern mountain regions became another focus of research stressing the interrelationship of lowlands and highlands (cf. Ehlers, 1980).

These two main research approaches have given important impulses to the development of high mountain geography and have thus influenced cultural geographical research. They rely on external interventions to modernize these regions considering the increasingly urgent questions on the protection of natural resources and the satisfaction of fundamental needs of a growing population in the high mountains of the Third World (cf. Grötzbach, 1982, 1984). The accessibility concept (Wilbanks, 1972; Allan, 1986) stresses the importance of road infrastructure for economic development and innovations brought from the plains into mountainous regions. These approaches based on modern theoretical thinking pay little attention to the fundamentally different socioeconomic base and political characteristics of developing countries. Geographical development research can fill the gap and provide aspects of comparison as it discusses

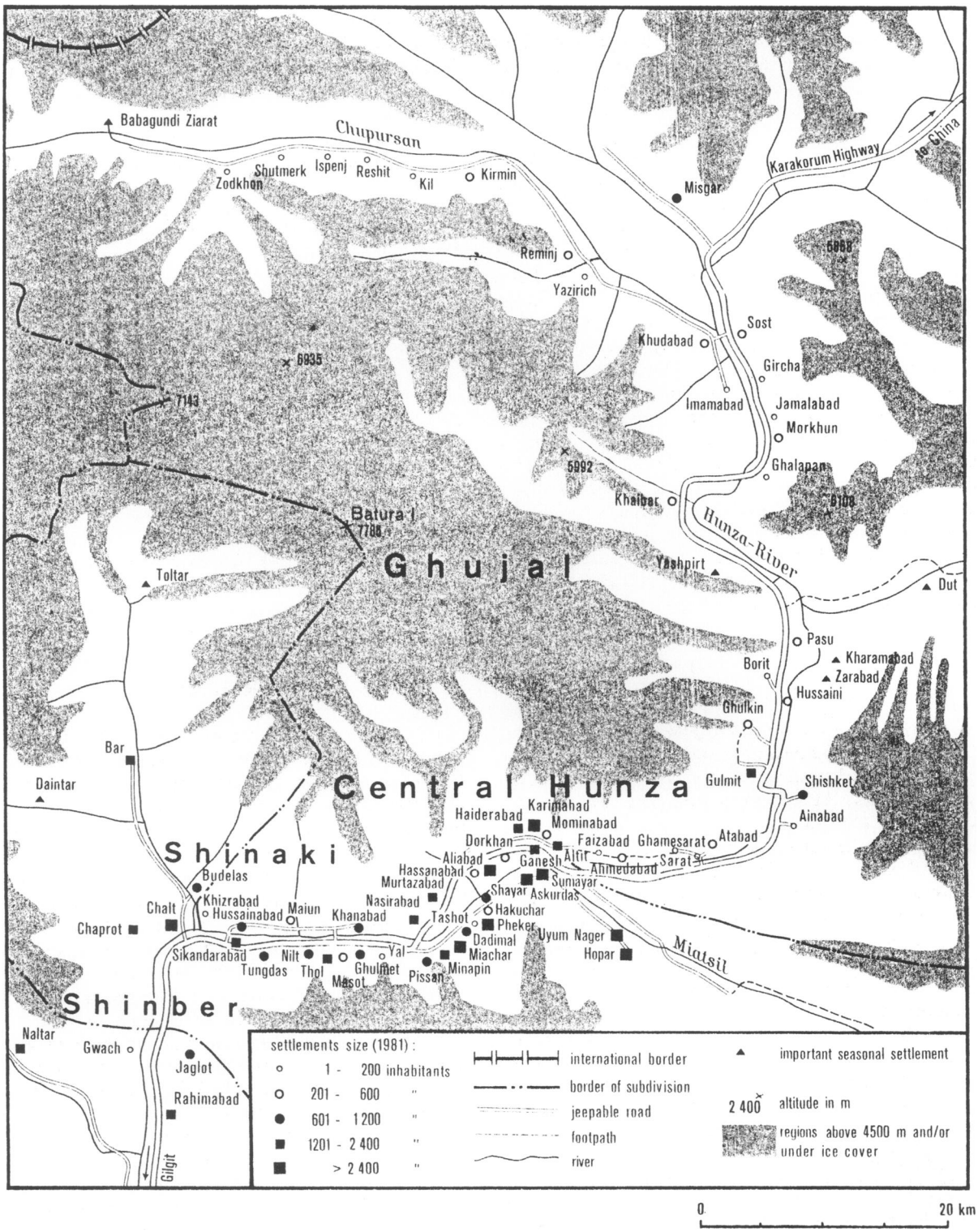


FIGURE 1. Settlements in the Hunza Valley.

regional aspects in their holistic context (cf. Blenck, Tröger, and Wingwiri, 1985: 69).

The following study focuses on the transformation processes and how they were initiated in a Karakoram valley. Starting with a historical perspective the consequences for the economic and social structure are analyzed with emphasis on the interaction between external interventions and internal developments. The construction of the Karakoram Highway is used as an example of change in the economic basis of a high mountain population and the local response to external challenge is analyzed.

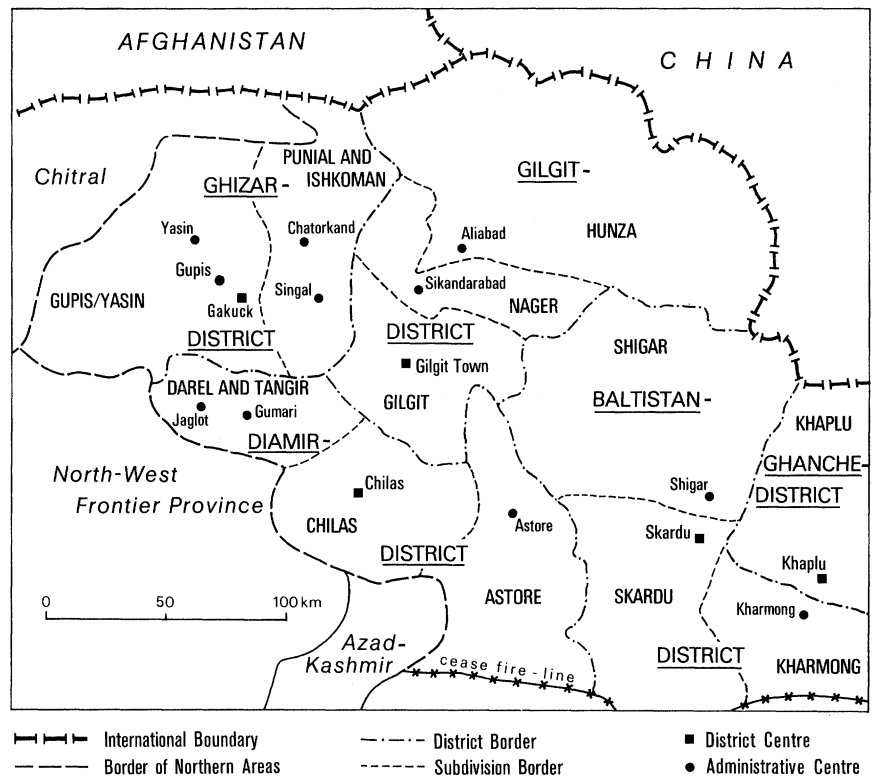


FIGURE 2. Administrative regions and borders of the Northern Areas.

THE STUDY AREA AND ITS ECONOMIC BASIS

For such a diachronic analysis the choice of a suitable study area was of prime importance. The present-day Hunza subdivision of the Northern Areas administered by Pakistan forms such a region (Figure 2). Hunza borders on Afghanistan and China in the north and is part of the area disputed by Pakistan and India in the forty-year Kashmir conflict. The size of the Hunza territory is 11,695 km^2—about one quarter that of Switzerland. The population density of 2.3 inhabitants per km^2 is very low. The permanent settlements of the 28,000 Hunzukuts, as they call themselves, lie close to the Hunza River or its tributaries (Government of Pakistan, 1984).

The population of the Hunza Valley consists of four ethno-linguistic groups. In the upper Hunza Valley there live mainly Wakhi farmers (19.2% of the Hunzukuts) who came as late immigrants from the Afghan Wakhan into Hunza seeking refuge; they speak an Eastern Iranian dialect. The Burusho of Central Hunza are the biggest group in number (67.1%). So far their idiom—the Burushaski—cannot be linked to any of the existing language groups. Shina speakers (12.6%) have their settlements in the lower parts of the Hunza Valley, known as Shinaki; the Shina language belongs to the Northwest Prakrit. The Dom form the fourth and smallest group (1.1%); they are traditionally craftsmen and musicians, thus ranking at the bottom of the social hierarchy. All the groups in Hunza have their own history and traditions and have in common a "mixed mountain agriculture" (Rhoades and Thompson, 1975) based on oasis irrigation and animal husbandry utilizing natural pastures in different ecological zones.

Large areas in Hunza are covered by glaciers. The Karakoram represents the most glaciated mountain area outside the polar regions and area-wise 28% of the Karakoram is covered by ice, compared with 8–12% in the Himalaya and 2% in the Alps. Such a vertically differentiated extreme relief explains the low population density.

The settlements are situated as compact irrigated oases between 1,850 and 3,500 m (Figure 3). Total annual average precipitation measured at climatic stations on the valley floor is less than 150 mm and rainfed agriculture is not possible. The extensive glaciation can only be explained by much higher precipitation in the summit region (cf. Flohn, 1969: 211, 213; Ferguson, 1984: 583; Whiteman, 1985: 5–28). The Hunza Valley is deeply incised and has very steep slopes: on a horizontal distance of 11 km the Karakoram main crest rises vertically 6 km at several places (Figure 4). This high relief energy gives rise to different vegetation belts from desert-steppe on the valley floor up to the nival belt of permanent ice (cf. Paffen, Pillewizer, and Schneider 1956; Schweinfurth, 1957). In between there are belts of differing widths of artemisia, conifers, and meadow, which are utilized in different ways by the mountain farmers.

The irrigation economy is based on highly sophisti-

FIGURE 3. Village of Altit Khan with traditional fort settlement structure on a terrace above the Hunza River.

cated and appropriate technology: the channels of the oases are mainly gravity fed by meltwaters of the side valleys of the Hunza River (Figure 5). The cultivated land is strictly divided by this network of channels and corresponding rights of water usage into areas of intensive agriculture, orchards, and irrigated grasslands (cf. Kreutzmann, 1988, 1990). The pasture land of the artemisia steppe lies above the oases with seasonal pastural settlements and occasional crop farming at altitudes ranging from 3,000 to 4,000 m.

Animal husbandry is important for the supply of meat and milk products. After preservation, these provide households with food for the winter season. Moreover, the livestock provide the permanent settlements with manure of which 20–40 tons of dry matter manure are needed per hectare for successful double cropping on terraces at an altitude of 2,500 m (Figure 6). Corn (*Zea mays*), millet (*Panicum miliaceum, Setaria italica*), buckwheat (*Fagopyrum esculentum* and *tataricum*), and potatoes (*Solanum tuberosum*) follow winter sown wheat and summer sown barley, respectively. However, part of the irrigated land has to be reserved for the production of fodder. Lucerne (*Medicago sativa*) is grown on a large scale and occupies up to half of the arable land in some of the irrigated oases, and thus reduces the valuable land available for grain production. Additionally, the straw of the grain and the leaves of trees are stored for fodder purposes. The size of herds depends on the availability of fodder during the long winter season. This interdependence between agriculture and animal husbandry is significant for the economic system of the Hunzukuts which has relied on subsistence farming over a long period.

In contrast to the plains of Pakistan where large landholdings, on the one hand, and tenancy and wage labor, on the other, dominate the agro-social structures,

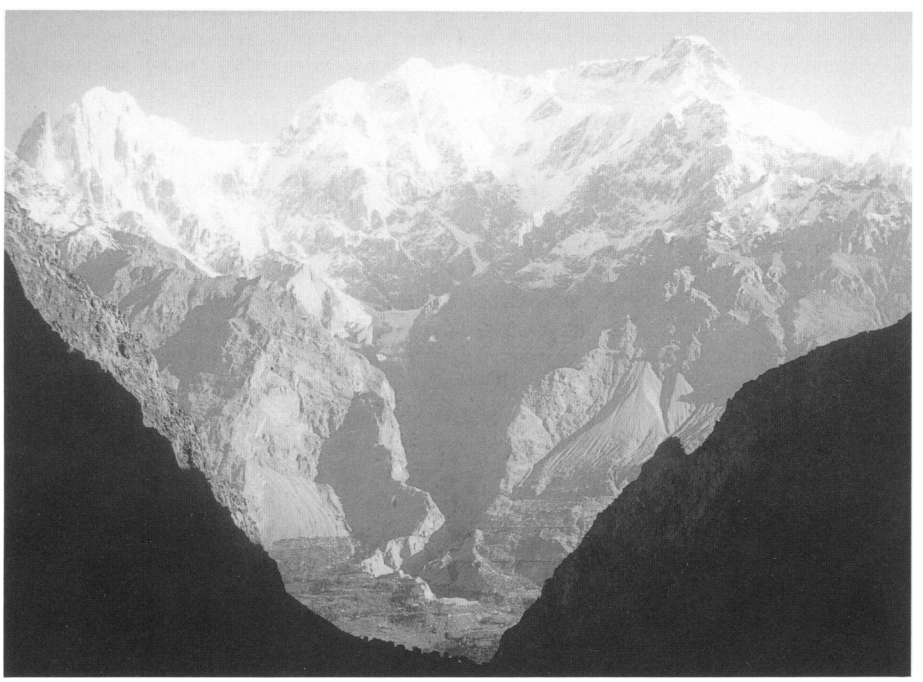


FIGURE 4. Ultar Peaks (7,330–7,610 m) above Karimabad (2,300–2,450 m). The Ultar glacier feeds the irrigation network of Central Hunza through meltwater and provides scanty pastures in the valleys.

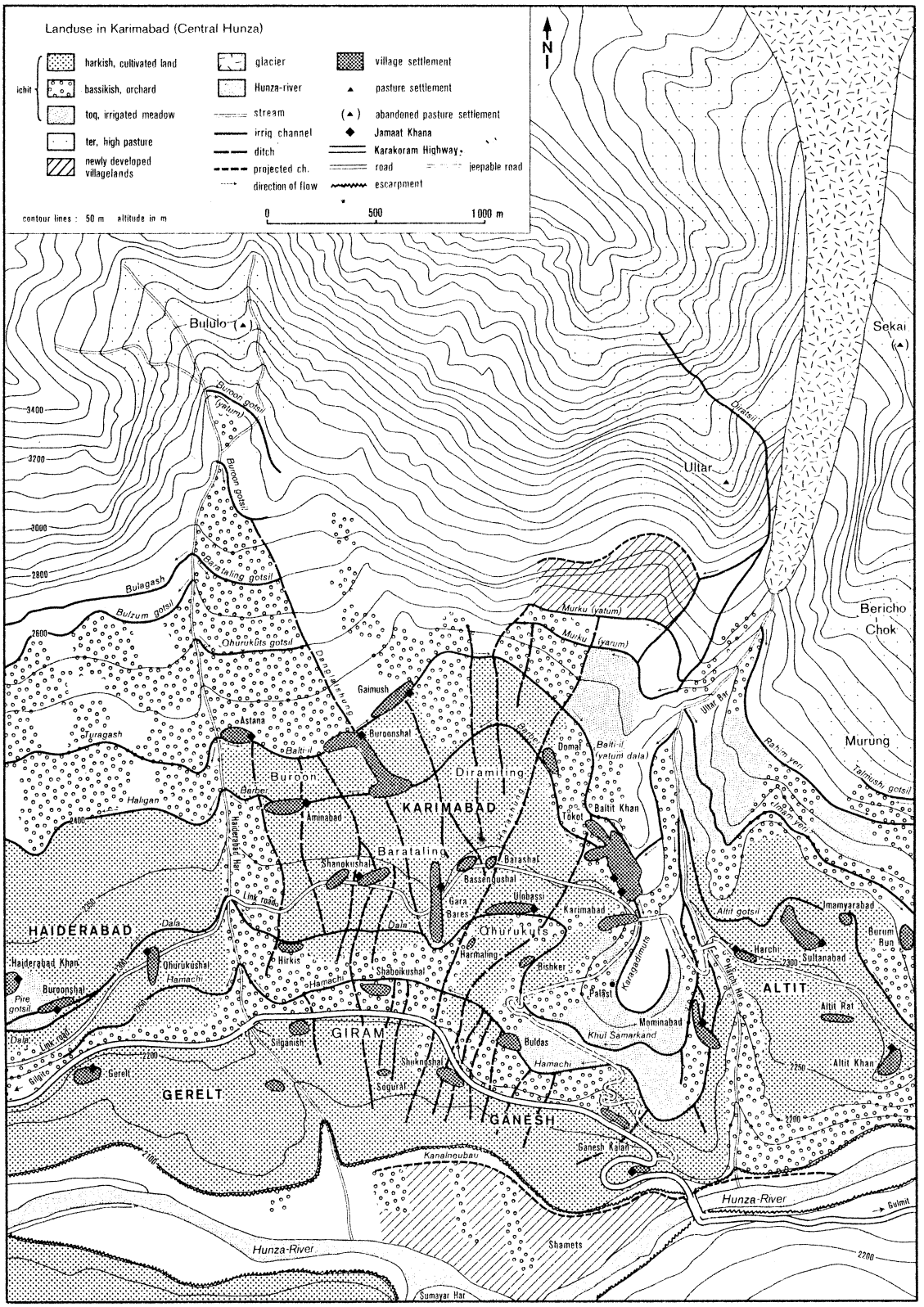


FIGURE 5. Land use in Karimabad.

FIGURE 6. Huge quantities of animal manure are required to fertilize the narrow terraces and to facilitate double-cropping.

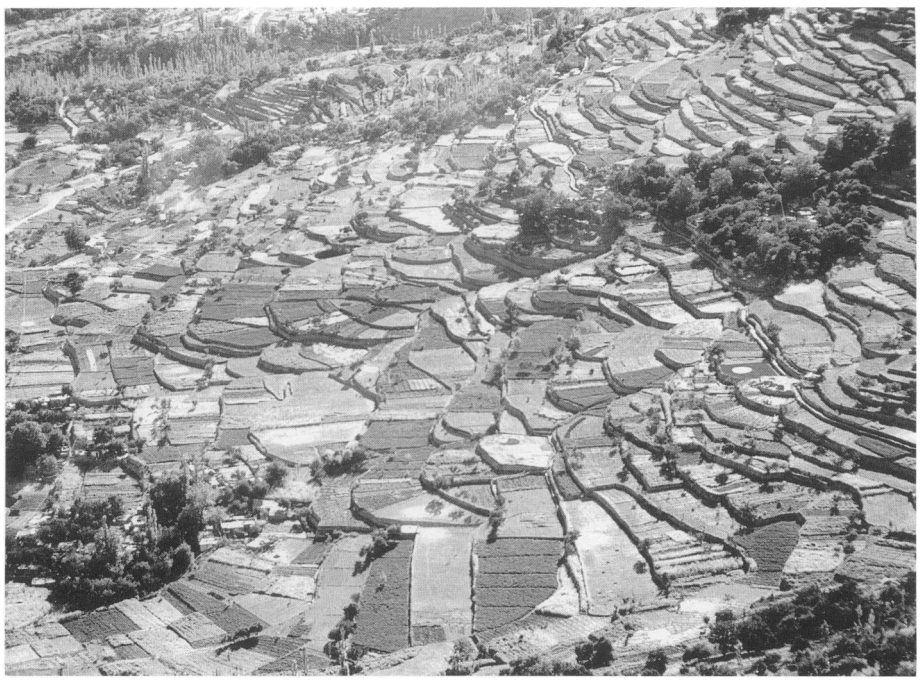


FIGURE 7. Smallholdings are the characteristic features of the Karakoram village lands.

in Hunza there is a high percentage of equally-sized landownership units that do not, however, conceal an evident social stratification—the extreme positions merely lie closer together. Farmers of all four ethno-linguistic groups in Hunza cultivate irrigated terraces that on an average comprise a landholding of approximately one hectare for mixed cropping (Figure 7), although they occupy different parts of the valley. The former ruler of Hunza, called *mir* or *tham,* was the largest landowner and still owned 120 ha of land in the 1960s. Since the abolishment of hereditary rule in 1974 he has sold most of his property to local farmers. His royal estate of six hectares, however, is still the largest possession in the whole of Karimabad (formerly named Baltit until 1983).

To supply the population with adequate basic foodstuffs has been a perpetual problem. It has been tackled in different ways depending on the historical conditions. To compensate for regional production deficits a non-agrarian exchange system came into existence.

HISTORICAL DEVELOPMENT OF EXCHANGE RELATIONS AND TRADING LINKS

Hunza has never functioned as a typical *Paßstaat* (pass or entrepot state) controlling important trade routes between Central Asia and the Indian subcontinent as did Badakhshan and Kashmir where the *pashmina* wool trade was significant. Nevertheless, the principality participated in trans-regional exchange trade in a similar manner to Chitral. Hunza had access to subsidiary branches of the silk route, such as the trade link between Badakhshan and Eastern Turkestan (Kashgar) and between Kashmir/Ladakh and Eastern Turkestan (Yarkand, Khotan). This position contrasted with that of neighboring principalities which depended solely on a rural economy. The colonial interests of Russia and British India in the nineteenth century followed similar courses and the strategic importance of the Hunza Valley was a valuable route. This factor led eventually to the construction of the Karakoram Highway.

There are four phases in which the development of the exchange relations took place (Figure 8; Kreutzmann, 1989: 17-39).

(1) Pre-colonial period: After the incorporation of Eastern Turkestan into the "Middle Kingdom" in 1759 the ruler of Hunza, Tham Khisro, tried to secure Hunza's independence through tribute relations with the emperor of China. He proved his loyalty by an annual exchange of gifts. Hunza had to pay its tribute in gold and received in return a great amount of silk, cotton cloth, tea, silver, and porcelain. The weight of the gold tribute amounted to 15 *miskal* which valued Rs. 120 in 1898, while the return gifts were worth Rs. 1,070 (McMahon, 1898: 61). There is no evidence for the assumption of Allan (1990: 406) that the hereditary ruler used local grain taxes "to trade with neighbouring Chinese Turkestan to the north and with Kashmir to the south." Compared to those fertile oases Hunza produced no surplus in grain and transport over long distances was difficult and costly. Trading goods had to be light and valuable; they were mainly used for the benefit of the hereditary ruler's own household. The regular attacks on trade caravans by the infamous Hunza robbers were more or less tolerated and did not lead to a serious decline of the friendly relations with China. The reason for this mutual understanding might have been the location of Hunza at the periphery of China and communication problems due to long distances. A substantial part of the income of the *mir* of Hunza was gathered by looting caravans and afterwards selling the captives to the slave markets of Badakhshan and Turkestan (cf. Müller-Stellrecht, 1978, 1981). Moreover, the *mir* managed to extend his sphere of influence to the Pamir regions where there were easily accessible and productive pastures for herds from Hunza. The Kirghiz nomads were partly expelled and the remaining graziers were taxed. For more than a century the exchange relations of Hunza were directed exclusively towards the north and the silk route oases. This one-sided orientation was challenged after 1846 when in the Treaty of Amritsar the Northern border was handed over to the Maharaja of Kashmir by the British colonial administration. The important Muslim Kashmir basin was sold to the Hindu Dogra ruler, Gulab Singh, and this eventually led to the so-called "Kashmir problem."

(2) Colonial period: The "turbulent frontier" phenomenon (Galbraith, 1959), the term applied to the Northern Frontier in the aftermath of the forward policy strategic advance, finally reached Hunza in 1891 when it was conquered by British-Kashmiri troops in the so-called "Hunza Campaign" and deprived of sovereignty (cf. Knight, 1895; Huttenback, 1975). The following implementation of "indirect rule" affected the institutions of hereditary rule and the social structure of Hunza in many ways.

During the colonial phase from 1892 to 1947 Hunza's economic and political relations were increasingly diverted to the south. The appointment of a compliant *mir* in Hunza eased relations with the British representatives in Gilgit and Kashmir and kept the cost of administration low. Under the 46-year auspices of Mir Muhammad Nazim Khan the internal socioeconomic structure in Hunza changed significantly. As an autocratic ruler backed by British support, he increased his income considerably out of local taxes and profited by colonial subsidies and contracts. Until 1937 the relations with China were nominally kept alive. At this point Hunza gave up all territorial claims in Xinjiang. The assertion of the British Indian predominance in the "Great Game" with Tsarist Russia signified a unilateral concentration of economic exchange relations on Gilgit, the center of colonial administration.

Although an intensification of trade through the Hunza Valley had been frequently considered, this route never gained the approval of the non-local traders and transporters. It was a difficult track and pack animals as well as adequate provisions were lacking. The rulers of Hunza and Nager levied transit dues on all merchandise which exceeded the tolls on the Chitral and Leh trade routes (Kreutzmann, 1991).

The excellent relations of the *mir* with the British colonial administration resulted in the offer of cultivable land in the vicinity of Gilgit where Hunzukuts also for the first time found non-agrarian jobs as mercenaries and in services.

(3) Post-colonial period: At the time of independence in 1947 when Pakistan and India came into existence as the result of dividing the "Indian Empire," the status of Kashmir was not defined. The criterion for dividing the country was a religiously motivated "Two Nation Theory." But the Hindu Maharaja of this princely state was reluctant to join Pakistan. There followed the first war between India and Pakistan and the demarcation of a cease-fire line dividing Kashmir into two parts. This colonial heritage is a constant burden on the relationship between the two neighboring countries. At present Kashmir is divided into the Indian province of Jammu and Kashmir and into the Pakistan-controlled Azad Kashmir. The regional structure was dramatically affected by the partition of the Indian Subcontinent in 1947. India

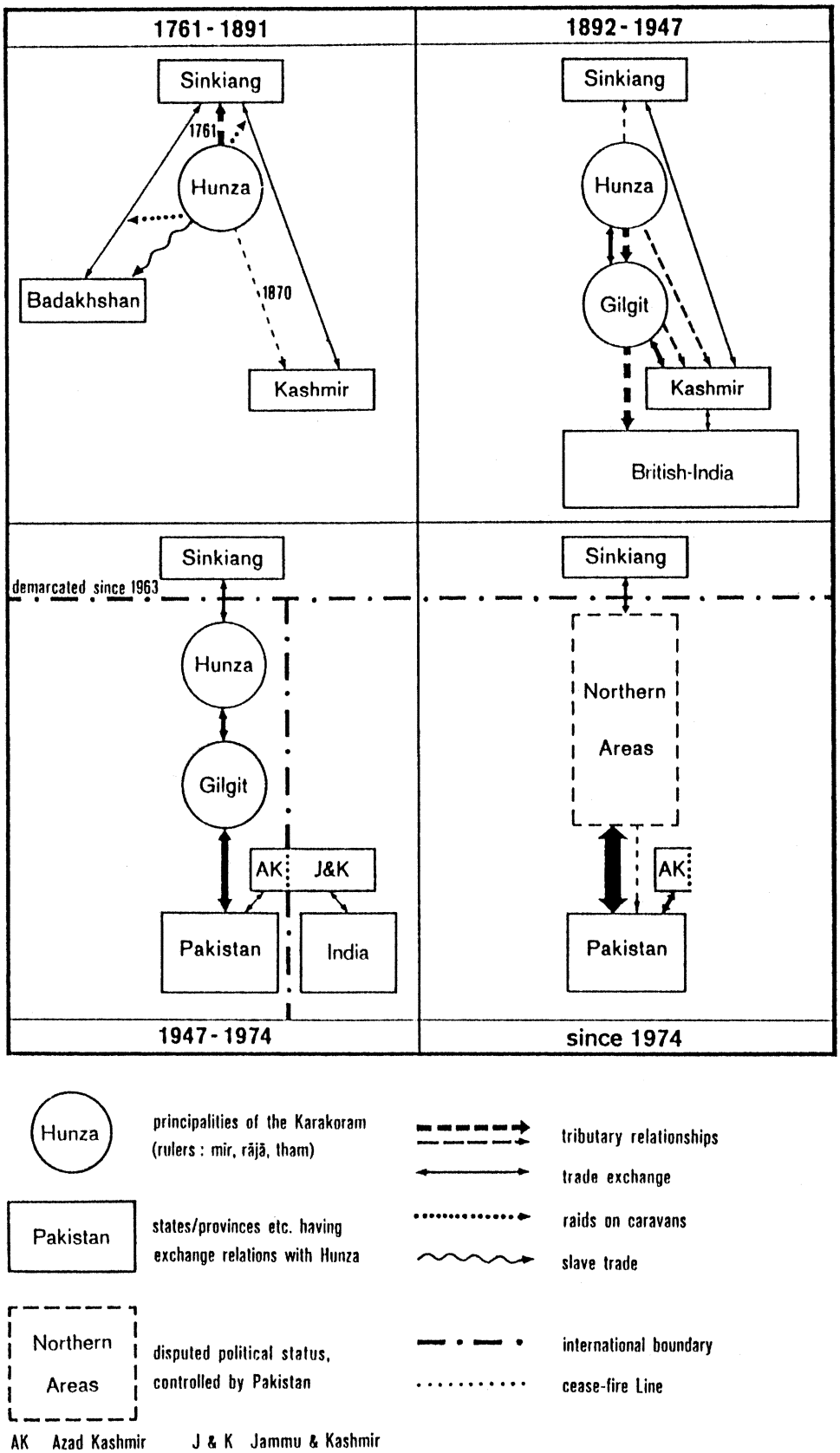


FIGURE 8. Historical development of exchange relations of Hunza. From *Modern Asian Studies*, 25 (4), 1991, p. 717, Cambridge University Press.

claims that Hunza as well as the total former Gilgit Agency and Baltistan are a part of Kashmir. According to Pakistan's views, these districts have a different status relating to international law and are excluded from the Kashmir dispute. For both opinions there are supporting and contradictory colonial documents.

All mountain regions with a majority Muslim population decided right from the beginning unequivocally to join Pakistan. Fighting the Kashmir Dogra rule, local officers succeeded to declare the "Independent Republic of Gilgit" on 1 November 1947 (Sherullah Beg, 1976: 9). For diplomatic reasons, and due to its inability to enforce its own administration in the region, the Government of Pakistan hesitated to incorporate these areas within its own domain. Therefore, the *mir* of Hunza renewed his diplomatic relations with China. At the same time he threatened Pakistan to join the Soviet Union if no quick solution were to be found in the question of accession (IOL/P&S/13/1860). The local rulers aspired for autonomy in internal matters with a Pakistani representation regarding foreign policy, similar to the princely states in India. The Kashmir war in 1947 polarized the question of alliance even more.

As one major result of these early conflicts, traditional links were severed by the demarcation of a cease-fire line. This actual line of control between Pakistan and India interrupts the traditional entry to the Valley of Kashmir (Rawalpindi-Domel-Srinagar) as well as the support routes for the Karakoram valleys (Gilgit-Srinagar; Baltistan-Kashmir/Ladakh). Nowadays Srinagar can be reached across the Pir Panjal mountains via the Banihal Pass (2,831 m) or tunnel (2,196 m), respectively, from the railhead at Jammu on well-developed roads. Previously the only route led from the Gilgit Agency across the Burzil Pass (4,200 m) into Srinagar. In a few centuries the Russo-British confrontation had turned into an unstable Indo-Pakistan contiguity which was aggravated on a global scale through different alliances of the two sovereign states with the contemporary Superpowers. The strategic importance of the Northern Areas has thus continued.

During the 1950s the Northern mountain communities lost nearly all their traditional trade and exchange relations due to the closure of borders and political maneuvers such as the sealing of the Hunza-China boundary in the winter of 1950–51. Pakistan improved the Babusar route (Pass, 4,173 m) via the Kagan Valley and, subsequently, the first jeep reached Gilgit in 1949. In Hunza the age of motorization began in 1957 when the valley was linked to the Pakistan road network.

At the same time plans were devised for the construction of an all-weather road between Pakistan and China. First plans for such a road through the Indus Valley with links to the railheads at Havelian (Hazara) and Dargai (Malakand Agency) originate from 1936. In a "Note on the Improvement of Communications between Gilgit and the Plains of India" Major Johnson proposes to follow the Swat route via Shangla Pass (2,100 m) and to negotiate with the "Indus Kohistan tribes" for safeguard of the road (IOL/P&S/12/2382). In 1959 these plans were realised with the construction of the "Indus Valley Road." It took nearly twenty years for this road—now called the Karakoram Highway—to be completed. This "Friendship Highway" forms a link between branches of the historical Silk Route in Xinjiang and the colonial "Grand Trunk Road" located in the Indo-Pakistan lowlands. The Karakoram Highway directed and substantially intensified the exchange relations of the Northern Areas and Hunza, in particular towards Pakistan.

(4) Post-autonomy period: During the presidentship of Zulfiqar Ali Bhutto the last rulers of the Northern Areas were deposed and pensioned during the period from 1972 to 1974 (Sherullah Beg, 1976: 11). Finally Hunza was integrated into Pakistan's administration and many measures were introduced by the government to develop infrastructure, to abolish direct taxes, and to subsidize transport. These provisions led to the eradication of famine periods in Hunza while increasing the dependence on non-local production. Trade with China along the Karakoram Highway continually gained in importance but it has, so far, an inferior position in the overall bilateral exchange of goods.

The Karakoram Highway was built mainly for strategic reasons. It has consequently tightened the bond of the Northern Areas with Pakistan. The power vacuum which was left after the abolishment of hereditary rule has been filled by administrative institutions that have also advanced into the remote mountain valleys.

THE PRESENT INCOME STRUCTURE IN HUNZA

The external interventions and their influence upon the internal structure in Hunza will be demonstrated by discussion of the composition of the household incomes in recent years. Household in this context denotes very close kinship bonds related to a group of several persons in order to manage the household together; i.e. in Hunza a house or hearth community who lives in a *ha,* the traditional one-room house, and shares all resources and the workload.

In addition to the formerly dominant subsistence farming and animal husbandry, there are now other sources of income (Figure 9) that contribute to the household income in varying degrees. Marketable products add to subsistence farming. There are incomes from non-agrarian occupations in services, trades, and crafts. These sources of income are only partly developed within Hunza. They depend on increased geographical mobility. A third component has to be taken into consideration: income is generated through different relationships with governmental, social, and developmental organizations which contribute directly and indirectly (e.g., through subsidies, scholarships, and loans) to the economic strength of households and to the diversification of financial resources.

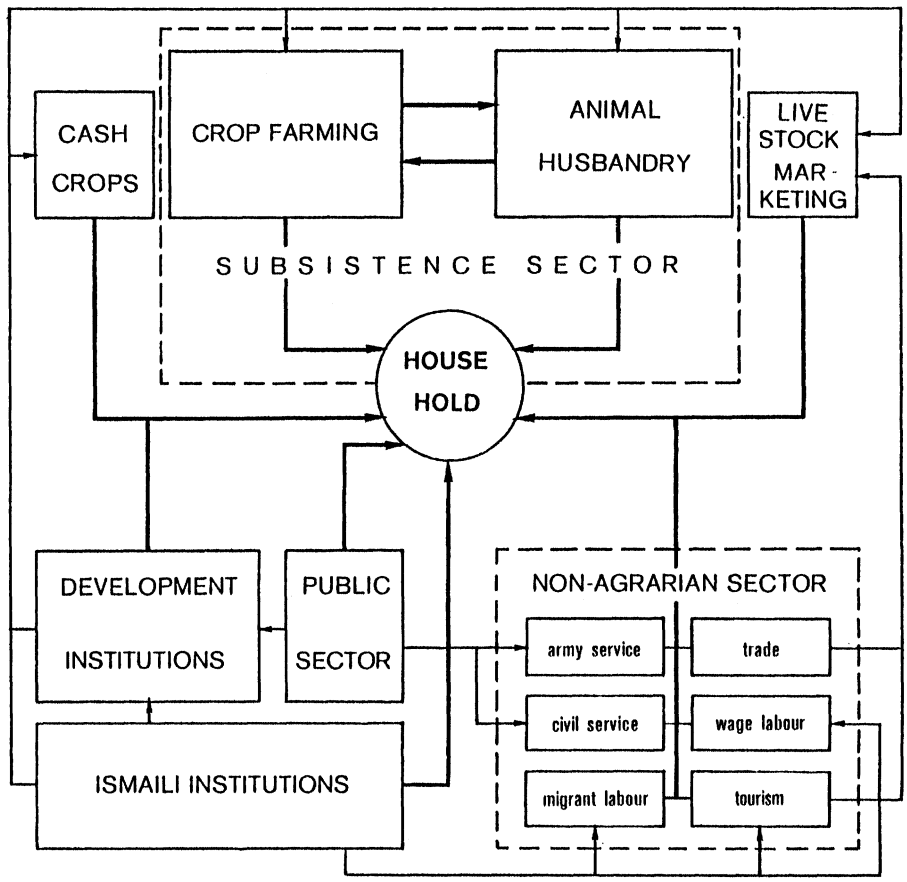


FIGURE 9. Income composition of a Hunza household.

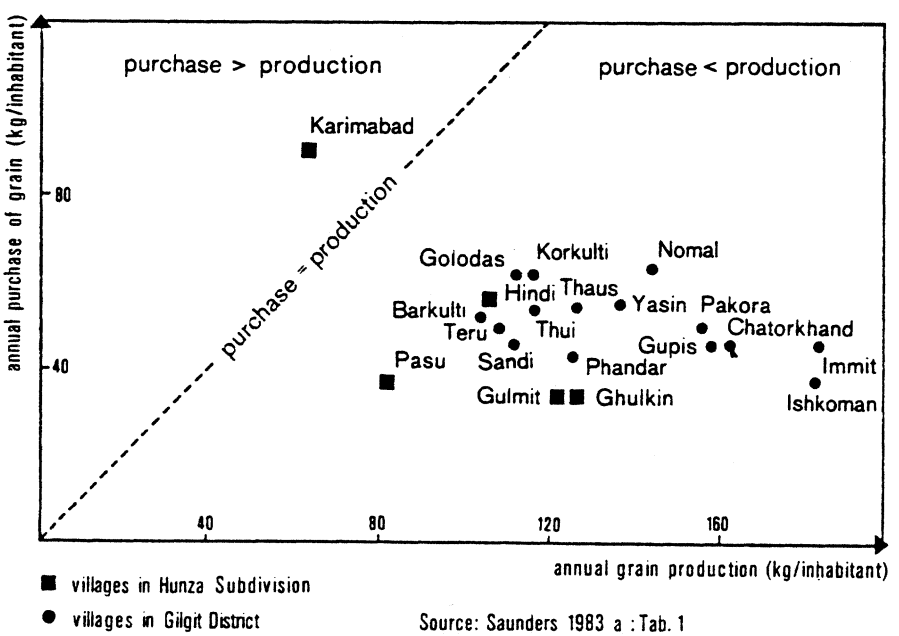


FIGURE 10. Production and purchase of grain in the Gilgit District.

A more detailed analysis of the components of the household incomes reveals the mechanism that influences this process of development. Two figures illustrate the local agricultural production deficit: presently, less than two thirds of all the consumed foodgrains are produced in the Gilgit District; in Karimabad, the capital of Hunza, the subsistence share is 42% in 1983, in Gulmit only 25% (Figure 10). Increased dependence on non-local resources rose to 47% in Gulmit by 1991. These figures are valid only for the grain production. Presently, 20–30% of the wheat consumption in Gilgit District is imported by the Civil Supplies Department (World Bank 1990: 95). Other foodstuffs like rice, pulses, vegetable fats, tea, and sugar have to be purchased in the local bazaars and cooperative societies' shops. Production deficits of this size which must be compensated from external sources are surprising in a high mountain region where agriculture dominates the occupational structure and subsistence production has been prevalent.

Meat production is similarly affected. The Northern Areas and Chitral face a severe deficit in meat supply at present. While cattle were traditionally slaughtered only during winter and the herds supplied the household with beef, mutton, and lamb, now the marketing of meat in Gilgit Town and also in the Hunza Valley (Rahimabad and Aliabad) has been spreading. Livestock is smuggled into Chitral from Afghanistan and water buffalos from down country are sent to Gilgit for slaughtering. In 1985 there were only two places in Gilgit bazaar where water buffalos were sold; in 1990 there were more than fifteen. Transport costs of live cattle have been subsidized by the Government (World Bank 1990: 95). During the autumn of 1989 a group of Hunzukut entrepreneurs from Ghujal bought, for the first time, a herd of 500 yaks and 1,500 sheep and goats in Xinjiang Province (China) and drove them via Hunza to Gilgit. Some animals were sold for upgrading the livestock population while the bulk ended up with the meat vendors (*qasai*) of Gilgit Town.

From the perspective of the individual household to compensate for this production deficit it is obviously necessary to earn additional money to be able to purchase extra supplies. These resources derive mainly from the factors that are categorized under the caption non-agrarian employment (Figure 9). Remittances of migrants play a very important role in this context.

MOBILITY PATTERNS IN THE KARAKORAM

Traditionally the agrarian calendar determined the demand for workforce and the seasonal emphasis of activities. In addition to the tasks of sowing, field cultivation, and harvesting in the villages every household sent shepherds to the high pastures during summer for grazing animals, hunting wildlife, and gathering firewood, birch-bark, and other natural products. The duration of this period of agricultural work depended on the location of the oases and thus on the possibility of harvesting single or double crops. In winter there were longer periods in which the daily workload for household members was less than during the rest of the year but these were also used for the construction and repair of channels and terraced fields. Not surprisingly, the winter season allowed the search for temporary occupations in construction work or trade in Gilgit. This seasonal pattern still dominates the labor-related mobility in many valleys of the Karakoram, for example in Bagrot, Yasin and Ishkoman (Ehlers, 1992: 86; Stöber, 1992: 98).

The spectrum of different forms of mobility is wide: geographical mobility includes intra-montane migration of Hunzukuts to surrounding areas within the Gilgit Agency, seasonal as well as increasingly long-term extra-montane migration to the urban centers of the lowlands, and finally overseas migration. A sample of 69 households in different villages of Hunza (Table 1) shows that roughly 17% of the male workforce are full-time farmers. Less than 1% migrated overseas to work, predominantly

TABLE 1
Sample survey of the Hunza workforce and workplace

Village	Number of households	Male workforce total	ø[1]	Army Service	Other non-agrarian activities in Overseas	Karachi	Gilgit	Hunza	Farmers in Hunza
Aminabad	40	64	1.6	7	1	15	10	21	10
Shishket	15	32	2.1	7	–	7	10	5	3
Kamaris	12	23	1.9	4	–	5	5	4	5
Ghulkin	12	29	2.4	5	–	7	4	6	7
Total	79	148	2.1	23	1	34	29	36	25
Percentage		100		15.6	0.6	23.0	19.6	24.3	16.9

[1]Average number of male workforce per household.
Source: Sample survey by author 1984 and 1985.

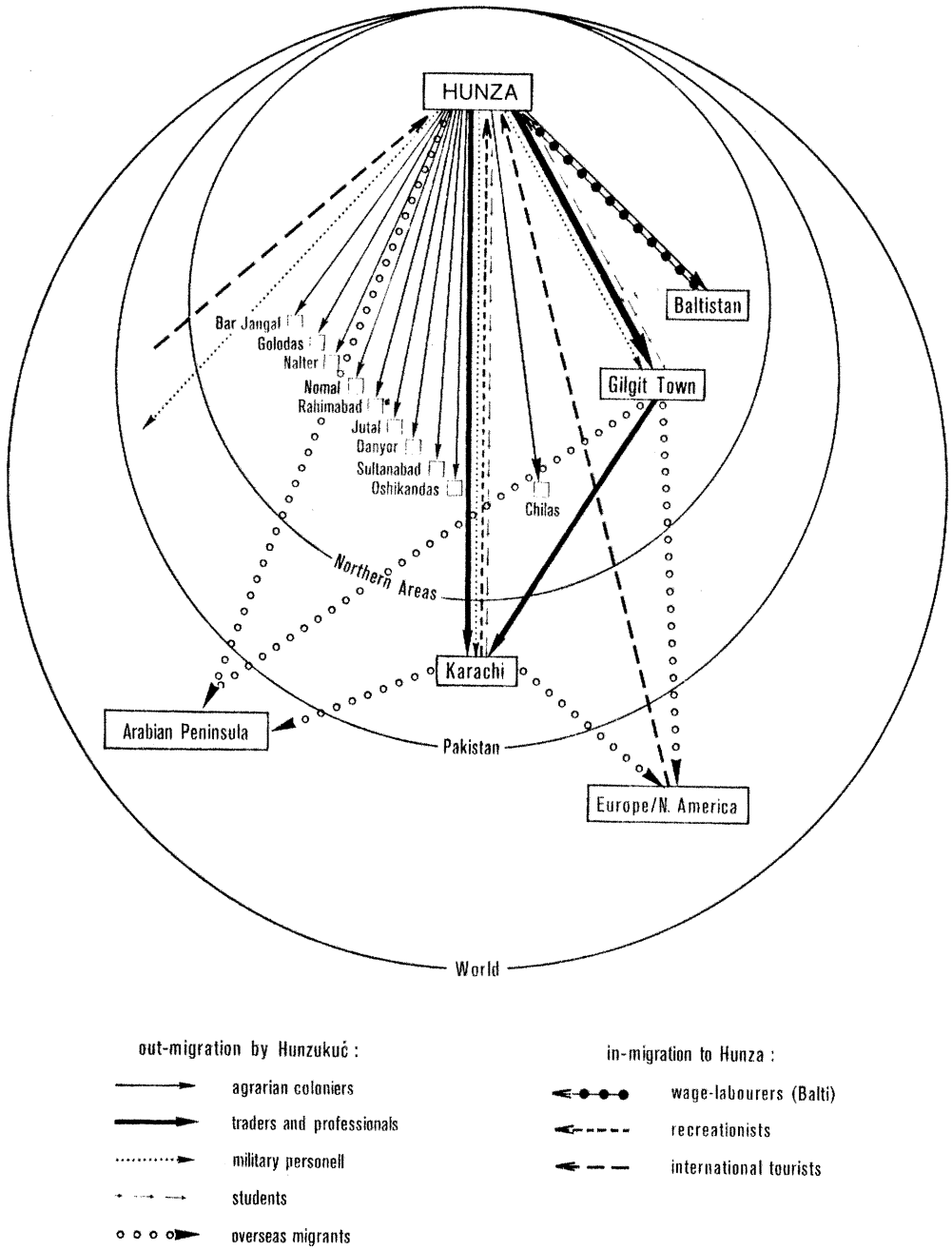
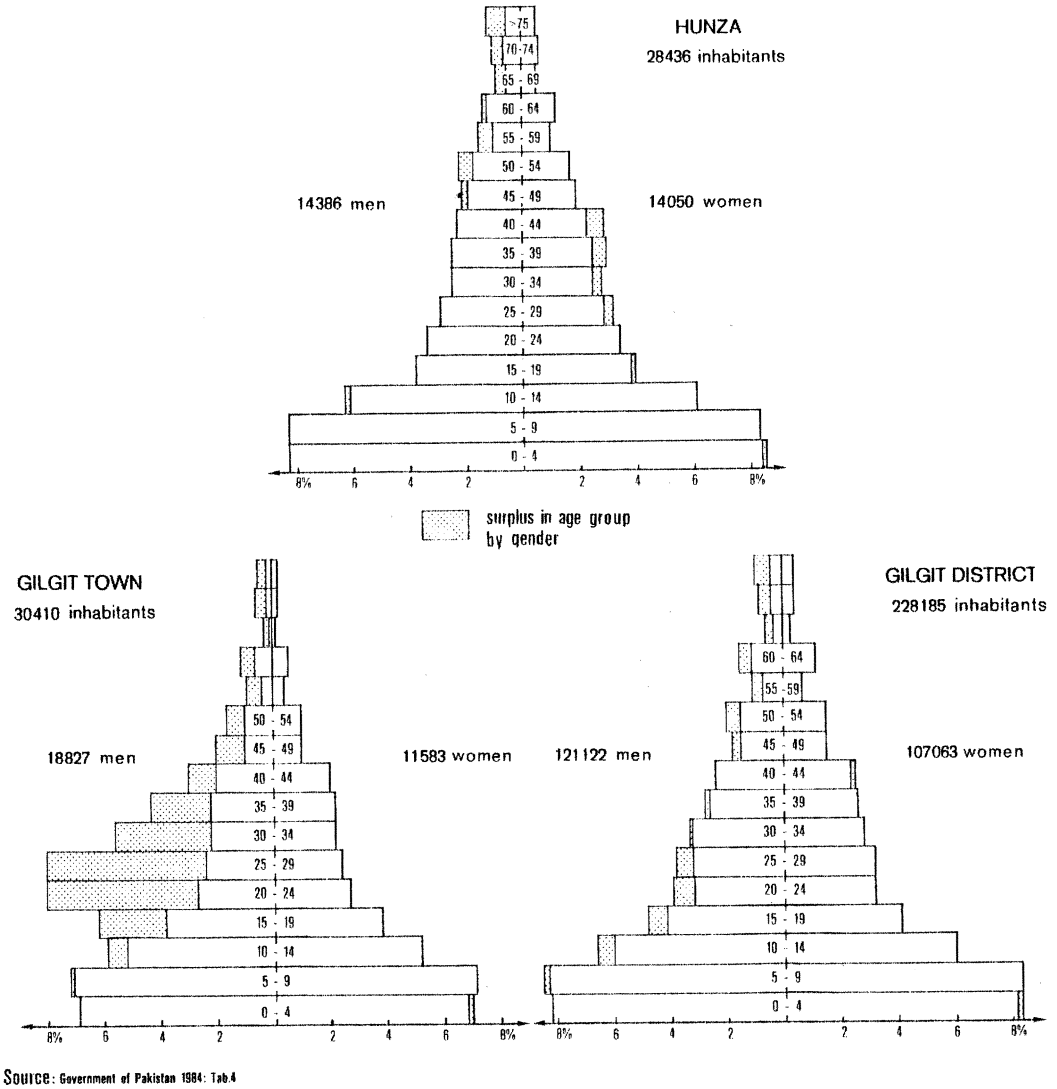


FIGURE 11. Mobility patterns from a Hunza perspective.

in the Middle East on contract basis, and 15.6% seek army services either within the Northern Areas (Northern Light Infantry, the former Gilgit or Northern Scouts) or in down country Pakistan. Two thirds of the male workforce follow other non-agrarian activities in Karachi, Gilgit, or Hunza. A growing number of Hunzukuts succeed in finding occupations within Hunza, in this sample nearly one quarter. Figure 11 shows different migration flows and the pattern qualitatively reflects mobility from the mountain perspective. Smaller numbers of seasonal migrants stream in the other direction into the mountains as wage-laborers from Baltistan and Ishkoman, as tourists from the lowlands, and from abroad.

More detailed information can be obtained by looking into the different spheres of mobility. In the aftermath of the British conquest of Hunza in 1891 agrarian colonization by Hunzukuts occurred in the vicinity of Gilgit Town. The colonial administration tried to safeguard the supply of the Gilgit garrison through amelioration of waste-lands. Mainly settlers from Hunza were admitted to these irrigated colonies because this valley community had, and still has, a well-known and excellent reputation for constructing channels in difficult terrain.



SOURCE: Government of Pakistan 1984: Tab.4

FIGURE 12. Demographic aspects of age groups in Hunza, Gilgit Town, and Gilgit District.

During this period the first opportunities of earning money outside Hunza opened up when mercenaries were recruited and simple administrative and post runners' jobs were offered. Army and civil services have been a reliable source of non-agrarian income, not only for Hunzukuts. Gilgit Town offers jobs in trade and business. The migration to Gilgit, the district capital, occurs seasonally as well as permanently. The number of Hunzukuts who live in Gilgit Town and its surroundings for long periods has been estimated at 14,000 persons, which is half the resident population of Hunza. The population pyramid (Figure 12) for Gilgit Town shows an enormous surplus of able-bodied male persons. Overall, for every 100 women there are 164 men which is typical for a migration target town where only men find occupations. They normally leave their families behind.

The estimate of the Ismaili community that 3,000 to 5,000 Hunzukuts live in down country, i.e., in the lowland urban centers and especially in Karachi, seems to be realistic. In summary, it can be said that the migration pattern of Hunza has changed from seasonal (confined to winters) migration during colonial times to a long-term absence.

The remittances of the migrants contribute a significant share to the household incomes and this allows the purchase of basic foodstuffs which originate from surplus production in the irrigated plains of Pakistan. It can be proved quantitatively that the amount of basic supplies in Hunza from external resources is steadily growing. Back in 1963 only 3-4% of the total consumption had to be imported into the Gilgit district whereas before the independence of Pakistan (1947) an external supply of foodstuffs was destined only for the army and colonial administration; (cf. Nasir Hyder, 1961:22; Staley, 1966: 373-374). Messerschmidt (1953: 236) gives a figure of 10,000 maund (=37,32 t) deficit per annum for the first years after the decolonization. Increasing monetary incomes and steady supplies of subsidized edibles have contributed to the abolishment of famine periods in Hunza.

THE DECLINE OF HIGH PASTURING AND THE CHANGED STRUCTURE OF THE DIVISION OF LABOR IN THE HUNZA HOUSEHOLD

Mixed mountain agriculture and division of labor are taken as two aspects of the agricultural sector within Hunza to illustrate the consequences resulting from the above-mentioned changed external conditions. High pasturing, interdependently connected to the tillage of fields in the system of mixed mountain agriculture, has undergone an enormous change within the last fifty years. In 1935 in Hunza 10–20% of households usually sent a shepherd to the high pastures, in Ghujal in the Upper Hunza Valley more than 75% of all households went to the high pastures (Qudratullah Beg, 1935; Schomberg, 1936).

Half a century later fieldwork revealed a completely different picture (Table 2): little more than one per cent of the households provided shepherds in Shinaki and Central Hunza. Even in Upper Hunza, the number decreased considerably, with the exception of Shimshal—the only village left in Hunza without road access—where the proportion of households following the difficult tracks to the remote pastures resembled the pattern from fifty years ago (cf. Schomberg, 1936: 56, 62; Kreutzmann 1986). Furthermore, the rotation system was simplified due to lack of personnel. Easily accessible pastures are used more frequently and for extended periods (Figure 13). This leads to the exhaustion of natural pasture resources in certain areas while additional available pasturage in remote areas is abandoned.

The age structure of the shepherds has changed. Elderly men have to take over duties that have been traditionally reserved for the sons of a household for whom it was a privilege to spend the hot summer season in the *Sommerfrische* of the pastures. There is also a tendency to extend cattle husbandry in the permanent settlements all year round. The decline of high pasturing is mainly determined by two factors which are interrelated: lack of manpower and non-agrarian income sources. Extended stays in the high pastures were traditionally a welcome change from daily village routine. Now they are incompatible with regular non-agrarian occupations. High pasturing practices are thus indicators of a changed production priority and a new evaluation of manpower.

Most areas of subsistence agriculture suffer severe changes in the traditional division of labor. This is apparent in high pasturing practices in Central Hunza where a group of old men has taken over. There women have been traditionally restricted from access to the high pastures due to local belief systems emphasizing the purity of higher altitudinal zones. A quite different approach is followed in Ghujal where women are responsible for grazing the cattle and are in control of the pasture settlements. A conflict between high pasturing and non-agrarian occupations of the men does not exist to the same extent. These differences within Hunza can be explained by the fact that the population belongs to different ethnic groups; contrary beliefs in purity are important and taboos determine pastoral activities.

It can be stated generally that agricultural activities are concentrated in the hands of women and old people as a result of reduced availability of manpower. In most agricultural activities the majority of able-bodied men are not involved at all. Accordingly, labor-intensive practices are given up, as has been illustrated in the case of high pasturing, and the agricultural workplace is being transferred into the permanent settlements on the valley bottom. These developments reflect the flexible approach to division of labor in the rural context of Hunza. Lorimer (published by Müller-Stellrecht 1979: 160) observed that by the 1930s: "In Hunza from ancient times, a man who is able to, does every kind of men's and women's work, and a woman who is able to, does both women's and men's work." In a changing socioeconomic environment women have to undertake many activities traditionally reserved to the male sphere and this increases the female workload dramatically and affects the utilization of the natural resource potential by the abandonment of traditional practices. Modern agricultural management has introduced mechanized plowing and threshing by travelling entrepreneurs or local cooperative societies. This is cheaper and more effective and these innovations help to reduce the labor shortage at peak seasons.

Other time-consuming activities are performed by external wage-laborers from Baltistan and Ishkoman who provide the required workforce during sowing and harvesting. For several years they have come regularly to Hunza for seasonal work. This phenomenon can be explained through regional differences in wage structure. Hunzukuts would not take up these jobs by being offered daily wages of 25 Rs in 1985 and which have doubled by 1989 (1 US $ = 21.4 Rs). For farmhands from Baltistan, where wages are much lower than in Hunza and where job opportunities are less, this seasonal occupation makes worthwhile the 250 km journey, as food and lodging are also provided.

Factors that help to explain regional differences in the Karakoram and demonstrate the special position of the Hunzukuts are described below.

THE IMPORTANCE OF THE ISMAILIYA FOR HUNZA

The high mountain regions of Hindukush and Karakoram can also be characterized as "regions of refuge" (cf. Skeldon, 1985: 234) for Shiite minorities in an otherwise Sunnite dominated Pakistan (Table 3). More than 95% of the Hunzukuts belong to the Ismailiya with Shah Karim al-Husayni, Aga Khan IV, as their spiritual

TABLE 2

Pasture utilization in Hunza 1935 and 1985 compared

Village	Pasture[1] location	Right of pasture	No. of households[2]		No. of shepherds		Type of animal		Cultivation	
			1935	1985	1935	1985	1935	1985	1935	1985
Maiun	Baiyes	Shinaki[3]	137	344	12		H/P	H/O	xx	–
Maiun	Maiun bar	Shinaki[3]	137	344	10	3-4	H/O/P	H/O	xx	–
Maiun	Rui bar	Shinaki[3]	137	344	10		H/O/P	H/O	–	–
Hindi	Deinger haráay	Hindi	170	303	3		H		–	–
Hindi	Chashi haráay	Hindi	170	303	2		H	–	–	
Hindi	Proni	Hindi	170	303	4		H		–	–
Hindi	Phulgi haráay	Hindi	170	303	3		H		–	–
Hindi	Hundri	Hindi	170	303	5		H	–	–	
Hindi	Ghumu ter	Hindi	170	303	4		H		–	–
Murtazabad	Bate khar	Murtazabad	112	190	3		H	–	–	–
Hassanabad	Hachindar	Hassanabad	47	72	5		H	H	–	–
Hassanabad	Hachindar	Ganesh giram	127	204	10		H	H	–	–
Hassanabad	Muchu har	Buróon	220	260	40-70	4	H/O	H/O	xx	–
Hassanabad	Shishpar	Dirámitin	250	320	40-70	4	H/O	H/O	xx	–
Dorkhan	Ghumat	Dorkhan	45	84	2-3	1	H	H	xx	–
Ganesh	Ganzupar	Ganesh kalan	90	100	15-20	-[4]	H/O	H/O	–	–
Karimabad	Bululo	Buróon	100	130	6	-	H	O	xx	tt
Karimabad	Hon	Dirámitin	100	150	4	-	H	H	–	–
Karimabad	Ultar	Karimabad	380	529	5-12	3-4	H/O/P	H/O	xx	–
Karimabad	Sekai	Wazirkuts	30	40	4	-	O/P	O	–	–
Karimabad	Bulen				-	-	O		–	–
Karimabad	Suchash				2	-	H	-	–	–
Altit	Berico cok	Berishal	33	47	8	2	H	H	–	–
Altit	Móintas	Altit	178	380	4	2	H	H	xx	tt
Altit	Talmushi	Altit	178	380	4		H	H	–	–
Altit	Khuwate	Altit	178	380	4		H	H	–	–
Altit	Tiyash	Altit	178	380	8		H	H	xx	–
Altit	Ghundoing	Altit	178	380	2		H	–	–	
Ahmedabad	Gurpi	Ahmedabad	36	70		3-4	H	H	xx	tt
Faisabad	Churd	Faisabad	14	20		1	H	H	–	–
Atabad	Baldiate	Atabad	32	73	10	4	H	H	–	–
Gulmit	Baldi hel	Gulmit	96	208	8	2	H/O	H/O	–	–
Gulmit	Gosh	Gulmit	96	208	2	1	H	H	xx	tt
Gulmit	Shatuber	Gulmit	96	208	-	-	O	O	–	–
Gulmit	Shamijerav	Gulmit/Khudabad[5]	96	208	12	6	H	H/O	–	–
Hussaini	Batura (South)	Hussaini	21	50	21	6-8	H/E	H/E	–	–
Pasu	Batura (North)	Pasu	22	61	22	13	H/Y/P	H/Y	xx	–
Shimshal	Shuwart/Shuijerab	Shimshal	54[6]	123	42	80	H/Y	H/Y	–	–
Shimshal	Ghujerab	Shimshal	54	123	12	6	H/Y	H/Y	–	–
Khudabad	Burum ter	Khudabad/Gulmit[5]	22	70	6	4	H	H	–	–
Morkhun	Abgerch/Boiber	Abgerchi[7]	10	60	)	)	H/Y/P	H/Y/D	xx	–
Circha (Sarteez)	Abgerch/Boiber	Abgerchi[7]	20	27	) 18	) 10	H/Y/P	H/Y/D	xx	–
Sost	Abgerch/Boiber	Abgerchi[7]	22	61	)	)	H/Y/P	H/Y/D	xx	–

[1]This table contains information available in written sources or in oral traditions recorded during fieldwork 1984/5 in Hunza.

[2]Number of households with rights of access to high pasture.

[3]Excluding Hindi (Nasirabad).

[4]These flocks are pastured by Nagerkuts.

[5]The combined pasture area of Shamijerav (Wakhi: white valley) and Burum ter (Burushaski: white pasture) is jointly used by Wakhi and Burusho in a contiguous settlement with separate dwellings.

[6]According to Schomberg (1936: 38) and Shipton (1938) 50 households with 160 male members had access to these pastures.

[7]The term Abgerchi includes all Wakhi settlers of common origin who claim to be the first settlers of Morkhun, Circha, Sarteez, Sost, and Ghalapan who jointly are entitled to the utilization of all pastures of Abgerch, Boiber, Puryar, and Mulung Kir above Morkhun. The data of Ghujal originate from fieldwork by author in 1990 and 1991.

H = huyés (sheep and goats); P = horses; O = oxen; D = donkeys; Y = yaks
xx = cultivation of grain crops in pasture area; tt = toq (irrigated grasslands)

Sources: Lorimer (personal records); Schomberg, 1936; author.

FIGURE 13. Shishpar pasture settlement (3,700 m). Flocks of the Diramitin from Central Hunza are pastured here by three shepherds during summer season.

TABLE 3
Religious group distribution in Pakistan

Religious group	Hunzan Subdivision	Gilgit District	Pakistan
Ismailiya	95 %	43 %	< 0.5 %
Shia Imami (12er)	5 %	39 %	< 17.0 %
Sunna	0 %	18 %	> 80.0 %
Muslim population (absolute numbers)	27,797	255,043	81,900,000

Sources: Usman Malik and Schimmel 1976: 205; Government of Pakistan 1984; World Bank 1987; author.

leader. The Aga Khan personifies a living imam and thus gives reasons for other Muslim communities to regard the Ismailiya as a separate sect within the Shia (see Kreutzmann, 1989: 149–165, for further details on the dissemination of the Ismailiya). This minority of Pakistani Ismailis holds an exceptional position. The income and employment profile of the mountain Ismailis who are smallholder farmers in the Hindukush and Karakoram contrasts with that of the Ismaili community living in Southern Pakistan which is called "khoja." This latter group originates from the former Hindu traders of the Lohana caste, who turned Ismaili in the fifteenth century, and occupies an affluent position in the trade and industry of Karachi. In various countries of East Africa where Ismaili traders settled during colonial times Ismailis have been persecuted and expelled since decolonization. Of the more than 200,000 refugees, over 10,000 came to Pakistan where they play an important and active role in industry and services.

The predecessor of the present Aga Khan united both the groups of the Pakistani Ismailiya and imposed an organizational structure upon them. This led to many community projects and to the establishment of community services; these have benefited most the smallholders of the Karakoram in recent years. In this respect, relationships exist between the southern and northernmost parts of Pakistan which can be interpreted as bonds of membership in a minority community. This explains why 90% of all extra-montane migrants from Hunza go to Karachi when they leave the Northern Areas.

The relationships between the headquarters of the Aga Khan in Aiglemont near Paris and the rural areas of the Karakoram are channelled through an institutional network that provides services and employment to community members. In recent years newly established projects like the "Aga Khan Rural Support Programme" or the restructured "Aga Khan Health Services" have focussed on non-communal and non-denominational target groups. Services and projects are identified for the improvement of the living conditions of all the people in the Northern Areas.

In addition to the numerous sub-institutions in the social sector for health and education, as well as in industry and tourism, that support the mountain Ismailis, there are informal networks which help in the provision of work for migrants, housing, and facilitating education.

The hierarchical system of the Aga Khan network is distinctly structured and delegates clear-cut competences for the institutions on different levels. The greatest

achievements have been attained in the education sector. Today more than 90% of the school-age children of Hunza attend educational institutions run either by the government or by the Aga Khan Education Services, and this is an exception in Pakistan. The percentage of children attending school in Hunza is outstanding, especially when compared with Pakistan's literacy rate which is 26.2% (35.1% for males, 16% for females), one of the lowest in the world (Government of Pakistan 1990: 107). Long-term consequences are already recognizable as a higher standard of education guarantees better job opportunities to the Hunzukuts and thus increases the household incomes significantly.

There has been also a strict organization of the administration of the Ismaili institutions. The Aga Khan himself has travelled to Hunza several times since 1960, the first ever visit of an Aga Khan to the Northern Areas. The completion of the Karakoram Highway in 1978 has also been helpful for his social organizations and numerous development projects have been initiated. Their influence on the economic structure will be illustrated.

DEVELOPMENT STRATEGIES SINCE THE CONSTRUCTION OF THE KARAKORAM HIGHWAY

This road underlines the political and strategic interest of Pakistan in the Northern regions and has led to further extension of the infrastructure. Thus, the villages of the Hunza Valley have become accessible by the Karakoram Highway and linkroads: 97% of all settlements can be reached by motorized transport (Figure 14). Compared to other areas in the Indian subcontinent that is an extremely high percentage for mountainous regions and it ensures better supply of goods. The improved accessibility of the settlements by jeep transport has resulted in the opening of shops and multipurpose cooperative societies in the villages of Hunza. Before the arrival of the first jeep to reach Baltit in 1957, Gilgit Town was the most important marketplace for Hunzukuts to buy goods. Only in Baltit were there a few shops on the jeep road along the Dala (main channel, cf. Figure 5). In the beginning they offered a limited number of goods such as cotton cloth, salt, sewing thread, tobacco, and matches, due to the low purchasing power of the people of Hunza. After 1981 the shops were moved to the newly built link road from the Karakoram Highway to Karimabad. Today in Karimabad and Aliabad, where in 1984 there were more than 120 shops, bazaar rows are able to compete with Gilgit Town as a shopping center for goods of daily and periodic need. For farmers of the neighboring Nager Subdivision, both villages are favored market places where they can exchange agricultural products (lucerne, cattle, chicken, dried fruit) and other goods (birch bark for packing butter, wooden items, wood for the construction of houses) for consumer goods and luxuries. In the civil supply depots of Karimabad, Aliabad, Gulmit, and Sost, flour, sugar, and salt are stored and sold at prices subsidized by the government. Today even in remote villages of Hunza there are shops that partly have their origin in joint ventures of clan groups. Thus profit and loss are shared by the potential buyers. Since the 1970s the government has supported "Multipurpose Cooperative Societies" and in 1984 there were 21 in Hunza and 18 in Nager. These are eligible for low interest credit and loan schemes. A high correlation can be proved between the extension of jeep roads and the establishment of such cooperatives. The increasing purchasing power of the population has been as important as the possibility to deliver goods by jeep in these developments. The increasing dependency on the buying of supplementary goods to satisfy the household needs is reflected by the expansion of bazaars and transport enterprises of the Hunzukuts.

In the course of the extension of the road network, development programs of the government and also internationally sponsored ones came into being. Government institutions are responsible for the extension of the infrastructure through the Northern Areas Public Works Department and the Community Basic Services Programme. The responsibilities of the NAPWD were enlarged in the last two five-year plans. There are also international development projects (FAO/UNDP: "Integrated Rural Support Programme") in cooperation with government institutions and NGOs (Non-Governmental Organizations) organized as private companies like the "Aga Khan Rural Support Programme." Their activities are concentrated primarily on an increase of productivity in agriculture, yet support for afforestation and employment programs is growing. They reflect attempts during colonial times when production to supply the administration increased significantly. After independence these efforts have been continued. Nevertheless, the deficit of locally produced grain has been increasing and has had to be offset by external supply. The endeavors of the present development organizations are concentrated on the agrarian sector and they aim at a transformation from subsistence farming to a market oriented economy. The target of self-sufficiency with regionally produced basic foods has never been achieved since the release of the "Abdullah-Report" for the Northern Areas (Abdullah, 1972) which recommended the selection of more profitable crops than cereals. The expected profit from these alternate crops should be utilized to purchase wheat flour from down country where costs of cereal production are much lower than in the Northern Areas.

In addition to the extension of cultivated land, the development agencies therefore support programs to increase the productivity of the area through more inputs such as mechanization, use of high yielding varieties, pesticides, and chemical fertilizer as well as the planting of cash crops. Accumulated profits can be utilized to buy basic foodstuffs produced in the Punjab, according to these programs. This strategy assumes that there is surplus grain production in the Punjab and a production niche for more valuable goods in the mountains result-

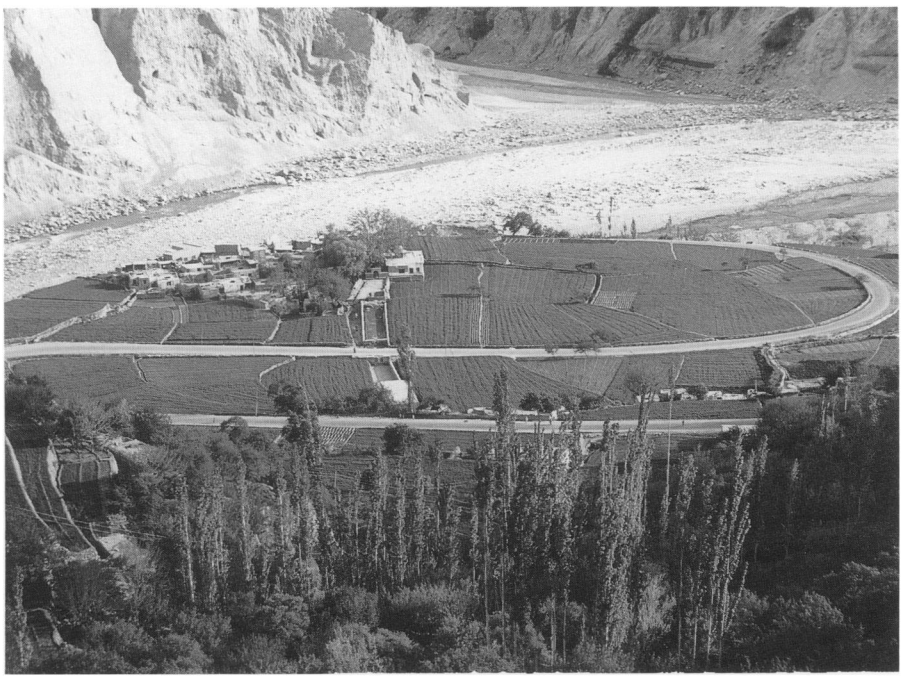


FIGURE 14. The Karakoram Highway at Ganesh. The metalled road cuts through the village lands and facilitates accessibility by motorized transport.

ing in enhanced highland–lowland economic interaction. Accordingly, seed potatoes, vegetable seeds, fruit, and dried fruit are marketable products and for these suitable production zones have been chosen. Thus, the seed potato production has been concentrated on Ghujal while agrarian consumer goods and dried fruit are mainly produced as profitable cash crops in the lower parts of the valley. Trials with vegetable seeds are still in the experimental stage.

It is remarkable that the efforts of development agencies concentrate on agriculture without taking into account the employment structure, which has changed due to migration and education. The increasing importance of tourism in Hunza and its consequences for the employment sector are also neglected in the integrated programs (cf. Kreutzmann, 1993).

Organizational patterns on the village level remarkably reflect the effect of development projects. After the local *mir* was deposed there occurred a power vacuum which was only partly filled by the Pakistani administration and which provided an ideal base for self-help institutions based on cooperative societies. The establishment of "Village Organizations" (VOs) in all the settlements reinforced the traditional role of village communities concerned with communal undertakings. In the meantime the villagers expanded their activities from agricultural enterprises to marketing of their own products. Communal savings make it easier to receive credit for new community investments which tend to increase the productivity and in which single households would never be successful. The village-based savings and credit program eases access to monetary resources of the settlement for any kind of enterprises although most of the financial flow originates from the transfer of money earned in the lowlands.

CONCLUSIONS

Various sources of the present income composition (cf. Figure 9) have been discussed in order to identify the processes that have caused socioeconomic transformations in Hunza. The external influence on the internal structure goes further than the regional and national level of Pakistan. The economy of rural high mountain regions of the Karakoram can also be interpreted in terms of the global monetary system. The diversification of sources of income coincides with, and is interdependently related to, the decreasing importance of subsistence farming. Its rank is challenged by cash crop production and non-agrarian occupations. Development organizations support the shift to market production of agrarian goods by extending expertise, credit, and facilities to the interested farmers. This results in a growing dependency of the Northern Areas on the granaries of the lowlands to secure the supply of basic foodstuffs.

Not only the Karakoram Highway, as a physical phenomenon, but more importantly the subsidized exchange processes which result from it, have enhanced the political and economic integration of the mountain regions into Pakistan. Thus the dependency of a region which used to be nearly self-sufficient has been reinforced. Previously there was only limited local economic growth.

At present, remittances of migrants largely compensate for the subsistence needs of the household and allow investments in trades and crafts. The resident population of Hunza continues the practice of a mixed mountain agriculture that has to be adjusted to changed production conditions in respect to inputs, mechanization, and availability of workforce. The target is to maximize the utilization of natural resources in relation to the socioeconomic environment with increased production within the permanent settlements.

More than any other region of Northern Pakistan, Hunza has profited from improved accessibility by the Karakoram Highway. Market production of agricultural goods and mobility have been increased to such an extent that all villages except one can be reached by motor vehicles and this facilitates the mobility of people and an easy flow of commodities. Rural development in high mountains cannot be analyzed without taking the supraregional influences into consideration: exchange relations not only gain importance when a modern infrastructure and lines of communication are developed as in the case of the Karakoram Highway, but also hitherto secluded mountain areas are transformed by socioeconomic developments which often originate from earlier times.

ACKNOWLEDGEMENTS

The research project on which this paper is based was mainly sponsored by the German Research Council (Deutsche Forschungsgemeinschaft) which supported twelve months of fieldwork in Hunza in 1984/85 and archive studies in the India Office Library and Records, the School of Oriental and African Studies, and the Royal Geographical Society, London in 1986 and 1988. I would like to thank all the Hunzukuts who supported my work. This study is dedicated to the memory of the late Ghulam Muhhammad Beg, Gilgit, the late Ayub Khan, Dorkhan, and the late Rahmat Ali, Karimabad. I am grateful for the valuable support of Detlef Engel, Free University of Berlin, for the cartography and Sabine Felmy, Berlin, for translation.

REFERENCES

Abdullah, M., 1972: *Report on Prospects of Agricultural Development in Northern Areas (Gilgit and Baltistan).* Islamabad: Government of Pakistan. 31 pp.

Allan, N. J. R., 1986: Accessibility and altitudinal zonation models of mountains. *Mountain Research and Development* 6(3): 185-194.

_____, 1990: Household food supply in Hunza Valley, Pakistan. *Geographical Review,* 80(4): 399-415.

Blenck, J., Troeger, S. and Wingwire, S. S., 1985: Geographische Entwicklungsforschung und Verflechtungsanalyse. *Zeitschrift für Wirtschaftsgeographie,* 29(2): 65-72.

Ehlers, E., 1980: Die Entnomadisierung iranischer Hochgebirge. Entwicklung und Verfall kulturgeographischer Höhengrenzen in vorderasiatischen Hochgebirgen. In Jentsch, C. and Liedtke, H. (eds.), *Höhengrenzen in Hochgebirgen.* Arbeiten aus dem Geographischen Institut des Saarlandes 29). Saarbrücken, Selbstverlag: 311-325.

_____, 1992: Population Growth and Carrying Capacity in the Karakorum. A Case Study. *Culture Area Karakorum Newsletter,* 2: 80-87.

Ferguson, R. I., 1984: Sediment Load of the Hunza River. Miller, K. J. (ed.): *The International Karakoram Project, Vol. II.* Cambridge: University Press, pp. 581-598.

Flohn, H., 1969: Zum Klima und Wasserhaushalt des Hindukusch und der benachbarten Hochgebirge. *Erdkunde* 23: 205-215.

Galbraith, J. S., 1959: 'The Turbulent Frontier' as a Factor in British Expansion. *Comparative Studies in Society and History* II, 1.

Government of Pakistan, 1990: *Economic Survey 1989-90.* Finance Division. Economic Adviser's Wing. Islamabad: Printing Corporation of Pakistan Press, 349 pp.

Grötzbach, E., 1982: *Das Hochgebirge als menschlicher Lebensraum.* München: Minerva Publikation (Eichstätter Hochschulreden 33), 26 pp. Reprint in English in Allan, N. J. R., Knapp, G. W. and Stadel, C. (eds.), 1988: *Human Impact on Mountains.* Totowa, N.J.: 24-35.

_____, 1984: Mobilisierung von Arbeitskräften im Hochgebirge. Zur sozioökonomischen Integration peripherer Räume. Grötzbach, E. and Rinschede, G. (eds.): *Beiträge zur vergleichenden Kulturgeographie der Hochgebirge.* (Eichstätter Beiträge 12). Regensburg: Friedrich Pustet: 73-91. (revised reprint in English in: *Mountain Research and Development,* 4: 229-235).

Huttenback, R. A., 1975: The "Great Game" in the Pamirs and the Hindu-Kush: The British Conquest of Hunza and Nagar. *Modern Asian Studies,* 9: 1-29.

IOL & R (India Office Library and Records): *Chinese Turkestan. Communications. Improvement of roads between India and Chinese Turkestan.* (IOL/P&S/12/2382).

_____, *Internal Files and Collections 48/17: Indian Independence: Gilgit April 1947-1949 June* (IOL/P&S/13/1860).

Ives, J. D., 1987: The Theory of Himalayan Environmental Degradation: Its Validity and Application Challenged by Recent Research. *Mountain Research and Development,* 7: 189-199.

Ives, J. and Messerli, B., 1989: *The Himalayan Dilemma. Reconciling Development and Conservation.* London and New York: Routledge, 295 pp.

Knight, E. F., 1895: *Where Three Empires Meet.* London: Longmans, Green (reprint, Lahore 1986). 528 pp.

Kreutzmann, H., 1987: Die Talschaft Hunza (Northern Areas of Pakistan): Wandel der Austauschbeziehungen unter Einfluß des Karakoram Highway. *Die Erde,* 118(1): 37-53.

_____, 1988: Oases of the Karakorum: Evolution of Irrigation and Social Organization in Hunza, North Pakistan. In Allan, N. J. R., Knapp, G. W. and Stadel, C. (eds.): *Human Impact on Mountains.* Totowa, N.J.: Rowman & Littlefield: 243-254.

_____, 1989: *Hunza-Ländliche Entwicklung im Karakorum.* Berlin: Dietrich Reimer (Abhandlungen-Anthropogeographie Band 44), 272 pp.

_____, 1990: Oasenbewässerung im Karakorum. Autochthone Techniken und exogene Überprägung in der Hochgebirgslandwirtschaft Nordpakistans. *Erdkunde,* 44(1): 10-23.

_____, 1991: The Karakoram Highway: The Impact of Road Construction on Mountain Societies. *Modern Asian Studies,* 25(4): 711-736.

_____, 1993: Tourism in the Hindukush-Karakoram: A case study on the Valley of Hunza (Northern Areas of Pakistan). Bashir, E. and Israr-Ud-Din (eds.), *Proceedings of the Second International Hindu Kush Cultural Conference, Chitral, September, 19-23, 1990.* Karachi: Oxford University Press.

McMahon, A. H., 1898: Report on the claims of the Kanjut tribe (i.e., the people of Hunza) to territory beyond the Hindu Kush, i.e., to the Taghdumbash Pamir and the Raskam valley. Srinagar (in *IOL & R/2/1079/253*: 60-67).

Messerschmidt, E., 1953: Gilgit und Baltistan. *Zeitschrift für Geopolitik,* 4: 235-237.

Müller-Stellrecht, I., 1978: *Hunza und China (1761-1891).* Wiesbaden: Steiner (Beiträge zur Südasienforschung 44). 139 pp.

_____, 1979: *Materialien zur Ethnographie Dardistans (Pakistan). Aus den nachgelassenen Aufzeichnungen von D. L. R. Lorimer. Teil 1: Hunza.* Graz: Akademische Druck- und Verlagsanstalt (Bergvölker im Hindukusch und Karakorum 3). 349 pp.

_____, 1981: Menschenhandel und Machtpolitik im westlichen Himalaya. *Zentralasiatische Studien,* 15: 391-472.

Nasir Hyder, 1961: Gilgit in Winter. *Pakistan Quarterly,* 10(3): 18-23.

Paffen, K. H., Pillewizer, W., and Schneider, H.-J., 1956: Forschungen im Hunza-Karakorum. *Erdkunde,* 10: 1-33.

Qudratullah Beg, 1935: *Hunza ters.* Lorimer, Personal Records in School of Oriental and African Studies, London, Box III.

Rathjens, C., 1981: Terminologische und methodische Fragen der Hochgebirgsforschung. *Geographische Zeitschrift,* 69: 68-77.

_____, 1982: *Geographie des Hochgebirges. Bd. 1: Der Naturraum.* B. G. Teubner, Stuttgart. 210 pp.

Rhoades, R. E., and Thompson, S. E., 1975: Adaptive strategies in alpine environments: beyond ecological particularism. *American Ethnologist,* 2: 535-551.

Schomberg, R. C. F., 1936: *Unknown Karakoram.* Martin Hopkinson, London. 244 pp.

Schweinfurth, U., 1957: *Die horizontale und vertikale Verbreitung der Vegetation im Himalaya.* Dümmler (Bonner Geographische Abhandlungen 20). Bonn.

Schweizer, G., 1984: Zur Definition und Typisierung der Hochgebirge aus Sicht der Kulturgeographie. In Grötzbach, E., and Rinschede, G. (eds.), *Beiträge zur vergleichenden Kulturgeographie der Hochgebirge.* (Eichstätter Beiträge 12). Friedrich Pustet, Regensburg, pp. 57-72.

Sherullah Beg, 1976: *An Introduction to Northern Areas of Pakistan.* Planning & Development Department, Gilgit. 16 pp.

Shipton, E. 1938: The Shaksgam Expedition. *Geographical Journal,* 91: 313-339.

Skeldon, R., 1985: Population pressure, mobility, and socioeconomic change in mountainous environments: regions of refuge in comparative perspective. *Mountain Research and Development,* 5(1): 233-250.

Staley, E., 1966: Arid Mountain Agriculture in Northern West Pakistan. Lahore (unpublished Ph.D. thesis).

Stöber, G., 1992: Economic Systems and Social Structure in the Yasin Valley. *Culture Area Karakorum Newsletter,* 2: 97-98.

Troll, C., 1941: *Studien zur vergleichenden Geographie der Hochgebirge der Erde.* (Bonner Mitteilungen, 21).

_____, 1959: *Die tropischen Gebirge, ihre dreidimensionale klimatische und pflanzengeographische Zonierung.* Dümmler (Bonner Geographische Abhandlungen, 25).

_____, 1962: Die dreidimensionale Landschaftsgliederung der Erde. Leidlmair, A. (ed.): *Hermann von Wissmann-Festschrift.* Tübingen. Selbstverlag des Geographischen Instituts, 54-80.

_____, 1975: Vergleichende Geographie der Hochgebirge in landschaftsökologischer Sicht. *Geographische Rundschau,* 27: 185-198. Reprint in English in Allan, N. J. R., Knapp, G. W., and Stadel, C. (eds.), 1988: *Human Impact on Mountains.* Rowman & Littlefield, 36-56.

Usman Malik, M., and Schimmel, A., 1976: *Pakistan. Das Land und seine Menschen. Geschichte, Kultur, Staat und Wirtschaft.* Tübingen, Basel: Erdmann (Buchreihe Ländermonographien 6). 564 pp.

Uhlig, H., and Haffner, W. N. (eds.) 1984: *Zur Entwicklung der vergleichenden Geographie der Hochgebirge.* Wissenschaftliche Buchgesellschaft (Wege der Forschung 223), Darmstadt. 588 pp.

Whiteman, P. T. S., 1985: *Mountain Oases.* Gilgit: FAO/UNDP PAK/80/009. 157 pp.

Wilbanks, T. 1972: Accessibility and Technological Change in Northern India. *Annals,* 62: 427-436.

World Bank, Operations Evaluation Department, 1987: *The Aga Khan Rural Support Program in Pakistan. An interim evaluation.* International Bank for Reconstruction and Development. 106 pp.

_____, 1990: *The Aga Khan Rural Support Program in Pakistan. A second interim evaluation.* International Bank for Reconstruction and Development, 134 pp.