People and Mountains: Perspectives on the Human Dimension of Mountain Development

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Abstract

The growing interest in mountain regions in recent times has stimulated a discussion about research directions and the need for comparative approaches. The human dimension in development processes in high-mountain areas regularly fails to be replicated by appropriate analysis because of a lack of applicable methods and relevant information. It is difficult to obtain comparative data and to differentiate mountain societies within nation states from other parts of the country's aggregated data, so characteristic of national censuses, for instance, inhibits comparative mountain research. In the present contribution case studies from the South and Central Asian high-mountain regions are introduced. An interpretative approach is outlined, which makes use of and projects widely known human development indicators onto different levels of regionalization. In this manner, a better understanding of the specific problems in mountain regions can be approached.

Key words: Afghanistan, Central Asia, development indicators, human development in mountain regions, India, Nepal, Pakistan, South Asia, Tajikistan

1. Introduction

The perception of high-mountain regions has undergone a significant change over time. The International Year of Mountains (IYM 2002) commemorated the tenth anniversary of the Rio conference on Environment and Development (UNCED), in which Chapter 13 of Agenda XXI addressed mountain issues and received substantial international attention and acceptance. In former times, mountains were perceived as fearful areas, intimidating people who had to travel across them. They aroused feelings of insecurity and their sheer mass and the huge dimensions of the structures and catastrophic processes terrified the traveller. With the advent of romanticism this perspective changed to one of intense admiration. The nineteenth century in particular produced numerous expressions of admiration, even rapture, in literature and the arts. The 20th century saw the emergence of a search for a 'Shangri-la' characterized by extreme longevity. Different remote mountain worlds, such as Tibet and Hunza, have been linked to this myth. At the same time mountaineering and trekking developed a comparable appeal to people from the industrialized world as a search for esoteric stimulation: well-being through closeness to nature in remote locations, Lamaist monasteries and hermit retreats (Fig. 1).

Academic research underwent a change of paradigm when the 'Himalayan Dilemma' (Ives & Messerli, 1989) was interpreted as much for demonstrating inadequacy of perception of complex problems as the failure of appropriate concepts and methods, and the interpretation of results. Consequently, Jack Ives titled his recent book 'Himalayan Perceptions: Environmental change and the well-being of mountain peoples.' The interrelationship between humankind and environment, between culture and nature, needs to be established before new approaches can be tested by empirical studies on different scales. There is an urgent need to discuss the situation of people in mountains and to highlight recent developments in scientific research.

> "As we have seen, the mountains resist the march of history, with its blessings and its burdens, or they accept it only with reluctance. And yet life sees to it that there is constant contact between hill population and lowlands. None of the Mediterranean ranges resembles the impenetrable mountains to be found in the Far East, in China, Japan, Indochina, India, and as far as the Malacca

peninsula. Since they have no communication with sea-level civilization, the communities found there are autonomous" (Braudel, 1972: 41).

A wide-spread perception of high-mountain regions has led to the interpretation of observed phenomena mainly as the result of their natural foundation rather than as the visible effects of human action and environmental manipulation. This perception is encountered especially when mountain regions of the non-industrialized world are the focus of attention, as the above quotation from Fernand Braudel indicates. The mountainous exceptionalism is linked primarily to the availability of natural resources and the greater exposure to hazardous processes compared to lowland regions.[1)] This leads to the assumption that high-mountain ecology and the interrelated economic sphere are controlled by 'verticality' (Funnel & Parish, 2001). Human utilization strategies are linked to the natural potential of their zonal location and/or altitudinal stages. Other characteristics include high-relief (or potential) energy, significant incidence of natural catastrophes, such as rock falls, avalanches, mud flows, earthquakes, and glacier-lake outbursts. Accessibility is qualified as being restricted by environmental conditions. Thus, high-mountain regions are generally described as quite remote from the centres of economic activity such that their participation in exchange relations is impaired. Exceptions have been cited: the Inca and Maya empires and Abyssinia (Ethiopia) were centred on tropical mountain regions; Tibet, Nepal, Sikkim, and Bhutan managed to accumulate considerable wealth from the vantage of their subtropical mountain bases and were able to compete with low-lying empires of monsoon Asia. These examples of mountain bastions of comparative strength and affluence vanished with the close of colonial times.

Verticality seems to have been employed as the prime indicator for the explanation of mountain exceptionalism. Mountain communities were often described as the relics of archaic populations, secluded from mainstream developments and preserving autochthonous patterns of behaviour. Probably James Hilton's novel 'Lost Horizon' (1933) stimulated the quest for a 'Shangri-la' (cf. Brauen, 2000) and the search for the remote valleys where longevity prevailed in contrast to the world at large. This phenomenon is attributed, yet never convincingly proved, to the Hunza Valley in the Karakoram, some valleys of the Caucasus (cf. Tierney, 1990), northwestern Yunnan, and the Peruvian Andes. Persons living in the mountains, and thus closer to the gods, represent a constant feature of a wide range of belief systems. The sacred mountains,[2)] such as Kailash in Tibet, Mount Meru in Hindu belief, Palitana and Girnar for Jains of Gujarat, Burhan Haldun in Mongolia, Miwa-noyama and Fuji San in Japan, Emei Shan and Tai Shan among others in China, Mount Athos, Parnass and Mount Olympus of Greece, Mount Sinai, Mount Ararat (Azat Masis) and Adam's Peak in Sri Lanka and many others are the destination of pilgrimages. These are the locations of topographically perceivable purity and of mythical ascriptions and narratives (Fig. 2).

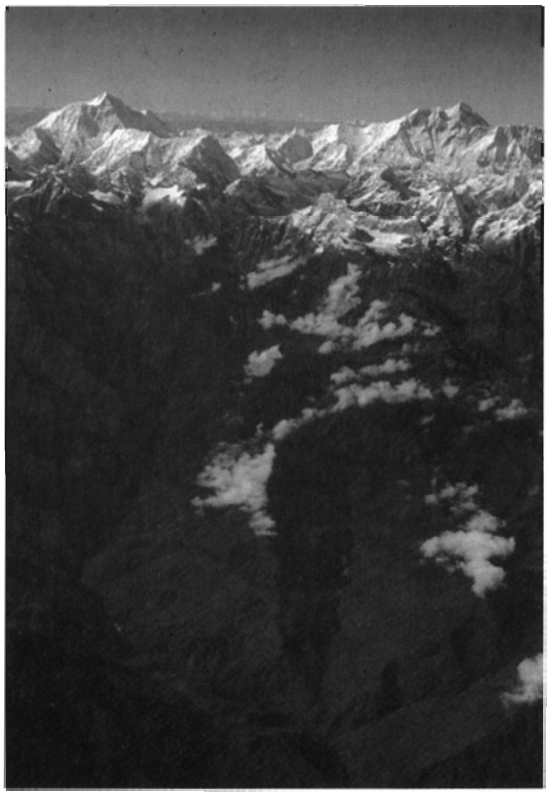


Fig. 1 Mount Everest: Profile from top to bottom. (photograph by Hermann Kreutzmann)

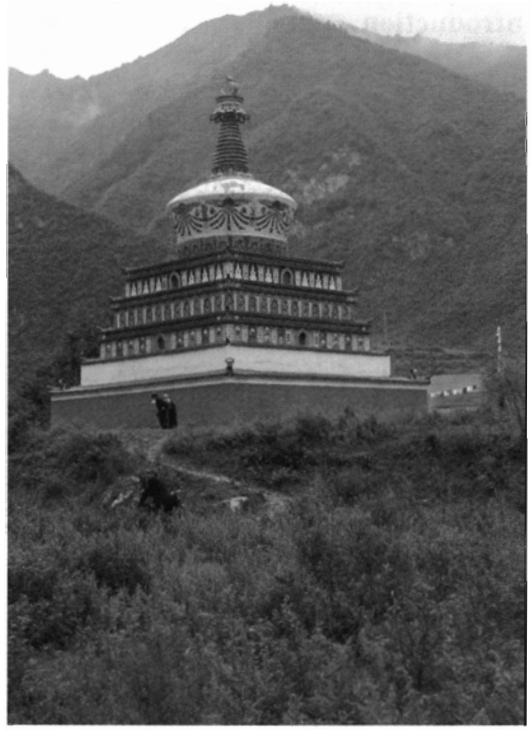


Fig. 2 For large numbers of people mountains are sacred and contain places of worship. (photograph by Hermann Kreutzmann)

2. The Refuge Model in Mountain Research: Traditional and New Approaches

Cultural geography preserves its own myths: mountains are featured quite prominently as 'regions of refuge' (Skeldon, 1985) when mountain people are addressed and when their difference to other communities is to be highlighted. The genesis of the refuge situation is explained as having two steps. Initially, the specific communities are presumed to have fled from the lowlands or from other conflict-prone mountain regions to their 'refuge.' The newly acquired secure location is then cut-off from external influences. The search for security thus becomes the catalyst for seclusion from outside influences and leads to the creation and persistence of a community characterized by unique religious belief systems, relict or archaic languages, and certain behavioural patterns. According to the refuge concept, these communities have chosen their life-style but, in doing so, have become marginalized in the context of nation states and market participation.

Cultural diversity is regarded as one of the prime descriptors of the mountain regions of High Asia. Although detailed empirical studies are rare this hypothesis is regularly put forward.[3] The mainstream interpretation of the observed cultural diversity employs inaccessibility and lack of communication as the responsible factors in the preservation for such distinct mountain differentiation (Grötzbach & Stadel, 1997). This theme has a remarkable record of continuity in mountain research. The originator of the geo- and ethnographical refuge model in mountain regions was Friedrich Ratzel. He described mountain communities as isolated, peculiar groups without any desire for exchange with the outside world. In his view the seclusion facilitated the preservation of archaic rituals and customs as well as the emergence of new autochthonous cultural expressions (Ratzel, 1909: 282-283). Since then, mountain research has widely embraced the refuge model. A conceptual renewal of Ratzel's ideas was provided by Skeldon (1985) who emphasized the considerable distances between population centres in the lowlands and the less densely settled mountain regions. Extended periods of isolation were held responsible for pre-industrial living conditions in mountain communities and their comparatively low socio-economic status. According to Skeldon (1985: 234), this was also an important factor in the maintenance of ethnic diversity.

The cultural anthropologist, Frederick Barth, previously had refuted such attributions: 'Though the naive assumption that each tribe and people has maintained its culture through a bellicose ignorance of its neighbours is no longer entertained, the simplistic view that geographical and social isolation have been critical factors in sustaining cultural diversity persists' (Barth, 1969: 9). His name is connected with a paradigm shift: socio-cultural factors were analyzed in order to understand the persistence of ethnic boundaries despite culture contact. Consequently, exchange relations, patterns of mobility and communication between settlements of different groups need to be interpreted as expressions of social processes operating among them. These social groups are flexible and act in such a manner that persistent patterns might be the result of exclusion and the creation of corporations and solidarity groups. Exchange between groups seems to depend predominantly on difference, but might also support their stability (Barth, 1969: 9-10). Thus, ethnic and cultural diversity is perceived as difference, which influences socio-spatial interpretations. These aspects feature less prominently in traditional geo-ecological studies which highlight environmental assets.

People and their cultural expressions come more clearly into focus when human intervention is regarded as the agent of change. Cultural-ecological interpretations emphasize utilization practices of different zones or altitudinal stages by mountain farmers and pastoralists.[4] Frequently, the available resources in a particular mountain region are simply compared with resident population in order to establish a measure of the regional carrying capacity. Possible differences in interests and strategies of local actors and external influences and interventions are often neglected. The apparently overwhelming visibility and force of natural phenomena seem to deter mountain researchers from analyzing societal processes and economic exchange relations, not to speak of political interferences, such as legislation and administrative regulation. The obvious participation of peripheral societies, in general, and mountain communities, in particular, in world market relations implies that greater attention must be afforded to actors and their arena. The effects of distant world market forces on local and regional levels need to be linked to overall multi-level conditions in order to understand complex livelihood strategies.[5] The scope for understanding development trends in high-mountain regions has to be expanded beyond the linkages between population growth and potential food production by addressing social processes and politico-economic interrelationships.

Returning to the traditionalist concept of 'regions of refuge' the main point of criticism is the neglect of historical transformations entailed by the model. Peripheral mountain communities are inadequately characterized when they are described as isolated and remote ethnic minorities which preserved their peculiar traditions and cultural distinction because of the lack of exchange relations and the domination of subsistence strategies for the provision of daily goods. Eric Wolf criticized the suggested dichotomy between actors and excluded communities in the course of history:

> "In the process [of expanding global exchange, HK], the societies and cultures of all these people

underwent major changes. These changes affected not only the peoples singled out as carriers of 'real' history but also the populations anthropologists have called 'primitives' and have often [been] studied as pristine survivals from a timeless past. The global processes set in motion by European expansion constitute *their* history as well. There are thus 'no contemporary ancestors', no people without history, no peoples – to use Lévi Strauss's phrase – whose histories have remained 'cold'" (Wolf, 1982: 385).

Consequently, the existence of ethno-linguistic diversity in mountain regions (Fig. 3) is less importantly the result of spatial distance than that of societal marginality. The incorporation of mountain societies into global exchange relations is dependent on their economic and strategic potentials. This statement is easily accepted when mountain tourism, arms trafficking, drug production and proliferation are highlighted as expressions of global communication and international exchange. It is further reinforced when participatory approaches in mountain development and proselytizing of 'pagan' communities are brought into focus as expressions of universalism. The broadened perspective implies that:

- mountain societies could participate in power and rule quite differently;
- the degree of integration might be linked to state control and administrative structures;
- their function as a region of minorities might be the result of historical processes and is not necessarily a stagnant state.

Based on a modified perception of mountain regions 'participating in the world economy' and their inhabitants 'acting in their own regard and responding to externalities' it is useful to nominate important topics for further research and to attempt an evaluation of the position of high-mountain regions in developing countries by applying common indicators of human development.

3. Contemporary Approaches and Concepts

The International Year of Mountains 2002 may be regarded as a climax for mountain research, at least in terms of publicity. The last decade, however, has seen a growing expansion of actual mountain research[6] and some of the widely attended discussions now take place on the internet, for example the 'Mountain Forum' and its derivatives. Following the beginning of UNESCO's 'Man and the Biosphere' (MAB) programme and the proclamation of the 'Munich Mountain Environment Manifesto' more than thirty years ago research interests were primarily focused on the interrelationships between human beings and their environment (UNESCO, 1973; DSE, 1974). Nevertheless, key issues relating to mountain development were also addressed. Today, human manipulation of high- mountain regions is receiving a great amount of attention. Such studies range between two extremes: resource utilization and creation of the cultural landscape on the one hand, and environmental degradation and destruction of natural resources on the other. Immediate remedies are recommended, such as the exclusion of land from uncontrolled human interference as conservation zones and/or protected areas, such as biosphere reserves, national parks, and World Heritage designations (IUCN, 1996; Doempke & Succow, 1998; Funnell & Price, 2003). Contemporary high-mountain research addressed in this interface includes the following:

(i) Population dynamics and mobility

Demographic growth in high-mountain regions cannot be explained by fertility and mortality pat-

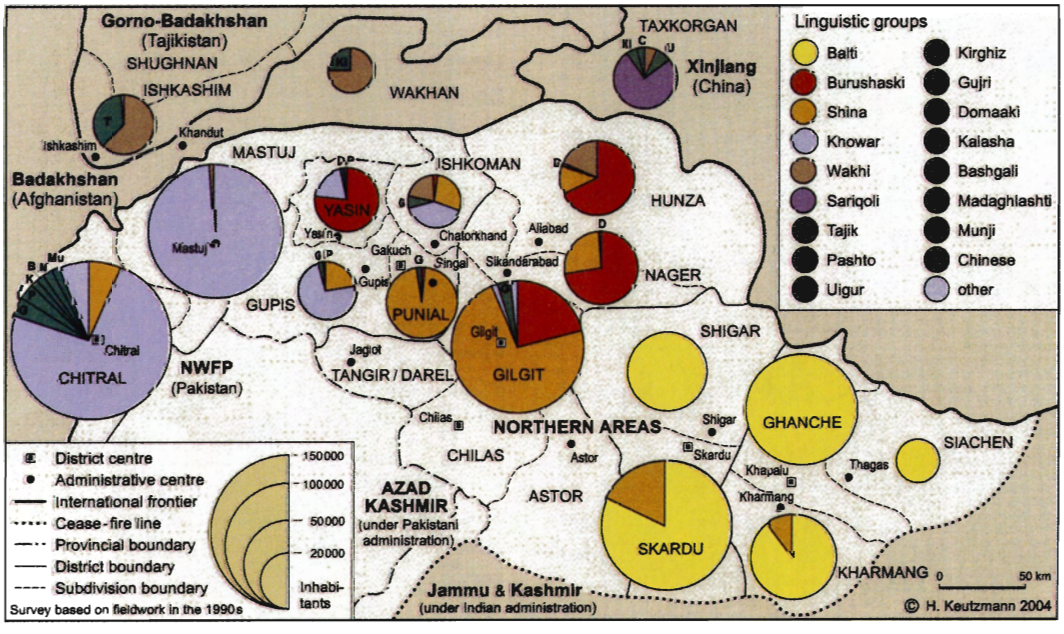


Fig. 3 Linguistic diversity in the Eastern Hindukush and Karakoram.

terns alone. Intra-montane migrations and extra-montane mobility are significant contributors to population processes. The expansion of community territories and the participation in seasonal and/or year-round economic activities beyond the settlement region also need to be considered.[7)]

(ii) Land-use and land-cover change

Competition for limited communal resources is a growing element of social conflict in the context of accessibility in mountain regions (Fig. 4). The loss of the commons and territorial disputes over cultivable land and pastures bind substantial resources in less productive activities (for the Karakoram, see Kreutzmann, 2005c). The importance of space is addressed by different commissions of the International Geographical Union (IGU), especially by the Land Use/Land Cover Change (LUCC) project (Lambin *et al.*, 2001) which compiled a data base and implemented a research programme for the Hindukush-Himalaya (see also, Blaikie & Sadeque, 2000 and Teklea & Hedlund, 2000, amongst others).

(iii) Survival strategies in the mountain periphery

High-mountain research in developing countries prominently features aspects of survival under peripheral conditions. The utilization of marginal resources, the supply of basic food items for local communities, and the exploitation of niche production are well represented. Market access within the framework of deregulation and globalisation is another important focus. 'Growth, poverty alleviation and sustainable resource management in the mountain areas of South Asia' was the topic of a conference held in Kathmandu. Local activists, bureaucrats, development experts and researchers discussed various aspects.[8)]

(iv) Decreasing entitlements of marginal groups

Competition for limited resources can be accentuated by private and state interference leading to the loss and/or expropriation of community assets. Thus along with the deprivation of property rights the local population loses control over their traditional entitlements. This is especially true for the least privileged and marginal groups (Fig. 5). At the same time 'aid' actors arrive on the scene and identify projects for regional planning that aim at improving the living conditions of mountain communities according to the development fashion of the day. Property rights, especially in areas without cadastral surveys and with weak, or non-existent, institutions should be secured for the local mountain communities. Aspects of 'mountain

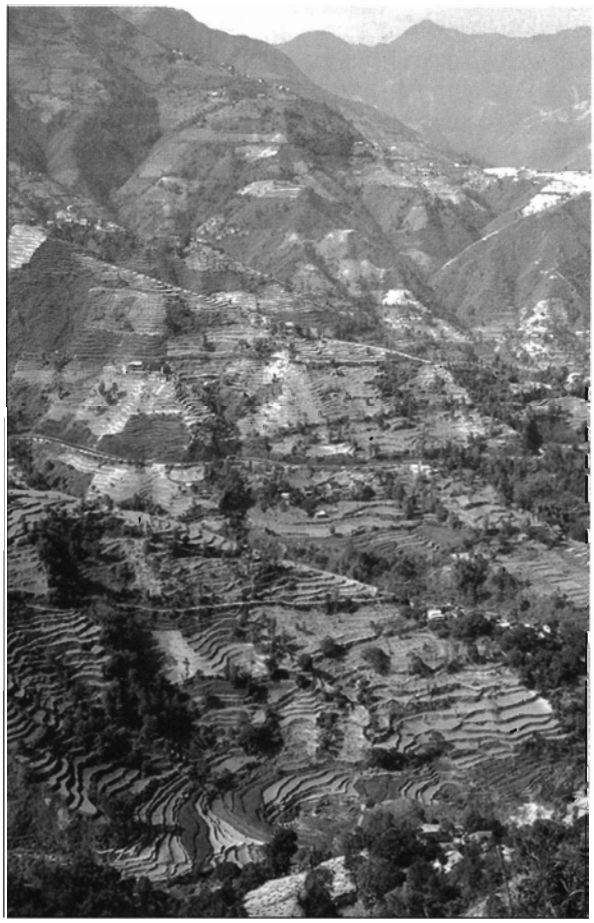


Fig. 4 Human utilization of mountain slopes has contributed to a significant change in land cover in the middle mountain region of Nepal.
(photograph by Hermann Kreutzmann)

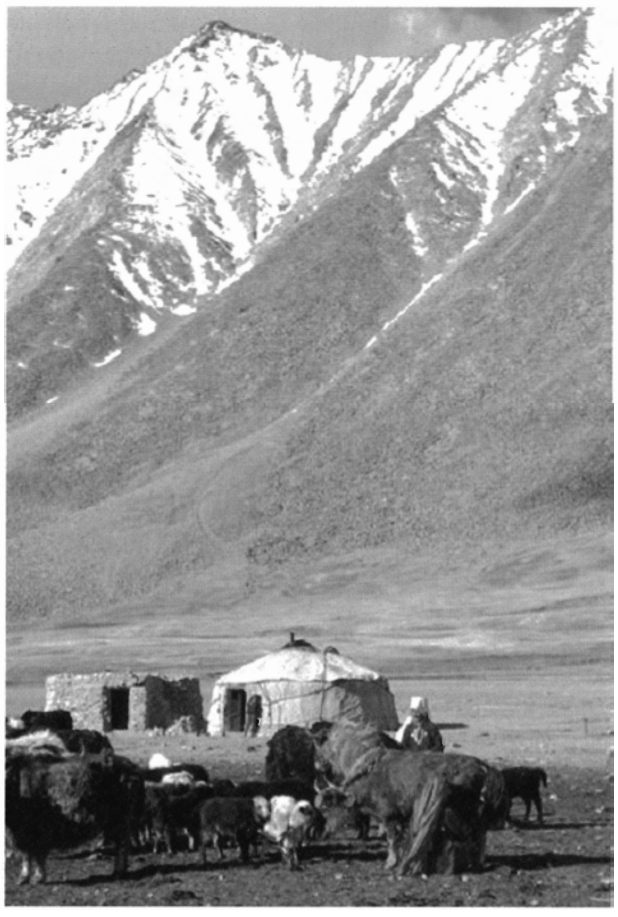


Fig. 5 High pastures are interpreted as marginal lands by some and constitute vital livelihoods for others: Pamirian pastures in the Afghan Wakhan.
(photograph by Hermann Kreutzmann)

laws and peoples' were discussed 'on-line' within the 'Mountain Forum' platform and the results published by Lynch and Maggio (2000).

(v) Resource management and energy provision

Sustainable utilization of available fuel resources needs to be compared with the local energy sector, present consumption of fossil assets and the potential future growth scenario (Rijal, 1999). In line with a growing population and changing living conditions an increase in demand by local consumers for natural resources and energy is anticipated. In addition, external players are competing for the natural resource potential: for example, to exploit timber resources and to generate and export energy by construction of high dams (McCully, 1996). Deforestation, transport of logs along modern traffic infrastructure, utilization of potential hydraulic energy for extra-montane consumption, are all fields of conflicting interests (Fig. 6). An electronic conference addressed these issues and the results were published under the title 'Mountain people, forest and trees: Strategies for balancing local management and outside interests' (Butt & Price, 2000).

(vi) Water as the prime resource of competition

Water has been highlighted as a resource asset and problem for high-mountain regions. Several studies introduced this issue as an example for localized resource potential which is traditionally utilized locally or by transport of rivers in the forelands.[9] Political-economic conflicts can occur when external players introduce large-scale projects that give no profits or only marginal benefits to local residents. Often, they have significant local impacts while profits are controlled from outside the mountain region. Consequently, the integration of marginal regions into the national and global market economy threatens local control of traditionally accessible resources. The World Commission on High Dams was established in 1998 to settle disputes and to enhance communication among different interest groups in the style of 'round tables'. It aimed at optimizing project planning and development.[10] The controversial water issue features prominently in the 'Cusco declaration on sustainable development of mountain ecosystems' (http://www.condesan.org) and illustrates the problem of competing interests over resources in mountain regions and strategies for their utilization (Fig. 7). Key phrases in the Cusco declaration of 2001 are: integrated watershed development; participation of communities; civil society and governments on all levels; responsibilities for regulation; control and conservation; respect for the organizations; cultural traditions and customary rights; economic compensation policies for mountain populations for the services rendered to develop lowlands.[11]

The high-level aims here proclaimed and the envisaged development strategies for mountain regions lead towards sustainable development and participation in globalized economies, whatever the meaning of this might be. Conflict of interest among different actors, power struggles, economic and political intervention, external and, in certain cases, inappropriate development models fill the spectrum in which mountain development takes place. If mountain regions and their inhabitants are treated as part of the world society then it is necessary to assess what we really

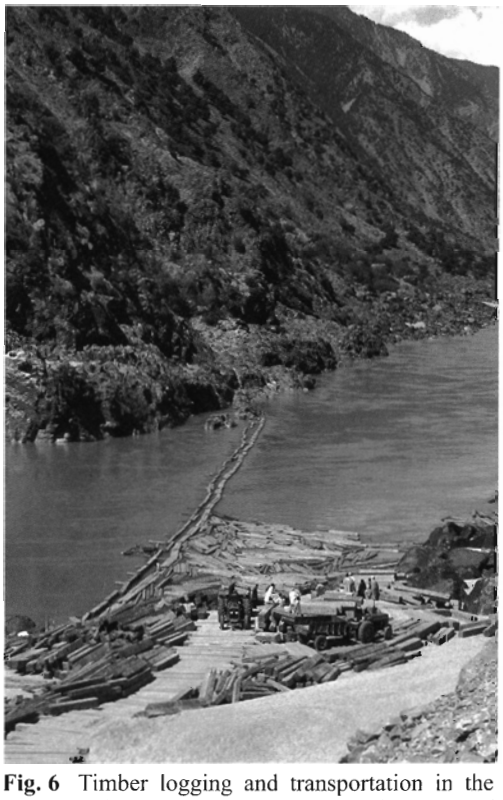


Fig. 6 Timber logging and transportation in the Indus Valley reflect the exploitation of natural resources.
(photograph by Hermann Kreutzmann)

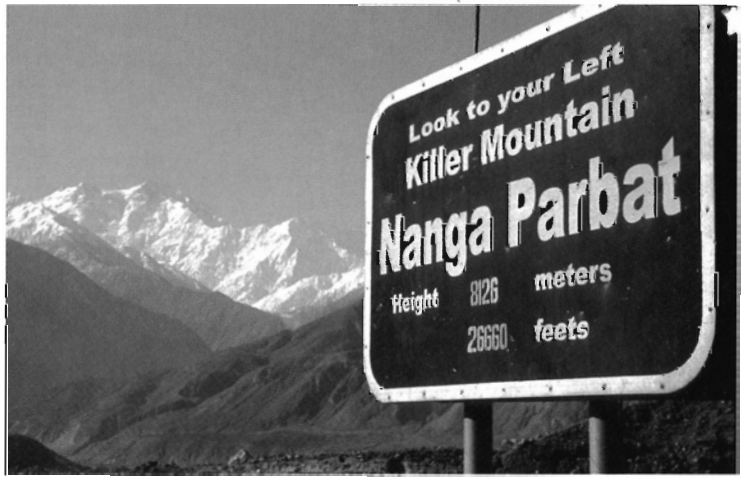


Fig. 7 Nanga Parbat 'the killer mountain' provides water and other valuable resources for the mountain farming households.
(photograph by Hermann Kreutzmann)

know about the development deficits and potential of these areas. The hypothesis presented here is that mountain regions are singled out for their specificity without appropriately considering their incorporation into nation states, administrative structures, and economic networks. There are manifold experiences from the industrialized countries where regional planning and domestic subsidiarity required detailed information and data bases (for example, the Swiss 'transformation' study by Brugger *et al.*, 1984). In the context of mountain regions in developing countries where uncountable mountain-related NGOs are based and where numerous development programmes are implemented there remains a significant lack of basic knowledge for the assessment of perceived deficits. How do development actors know where to alleviate poverty by initiating a programme? On a global scale we are used to different systems of indicators which are structuring the world on a country by country basis. What information do they contain about mountain areas?

4. The Human Development Index (HDI) and Its Application to Mountain Areas?

Indicators of quality of life are now introduced to illustrate regional disparities, deficiencies in infrastructural assets and inequalities in access to socio-economic resources and opportunities. A widely used indicator is the Human Development Index (HDI) emanating from a United Nations initiative to reduce short-comings of the one-dimensional per capita income, an indicator preferred by the World Bank and globally operating financial institutions. The HDI acknowledges non-monetary transactions as part of domestic economies and highlights development effects which cannot be linked in any causal manner to monetary incomes. Nevertheless, the first of three HDI dimensions is the identification of per capita income in units of purchasing power parity (PPP $), the other two address quality of education and life expectancy. For our discussion about the standard of development in mountain regions these parameters must be tested.[12] HDI data are mainly available in the format of nation states; this immediately imposes a practical problem.[13] Statistical enumeration entities are very rarely congruous with relevant units of investigation. In a number of cases the available data are merely the result of rough estimates, which renders their quality questionable (UNDP 2004a, b, 2005; World Bank 2005).

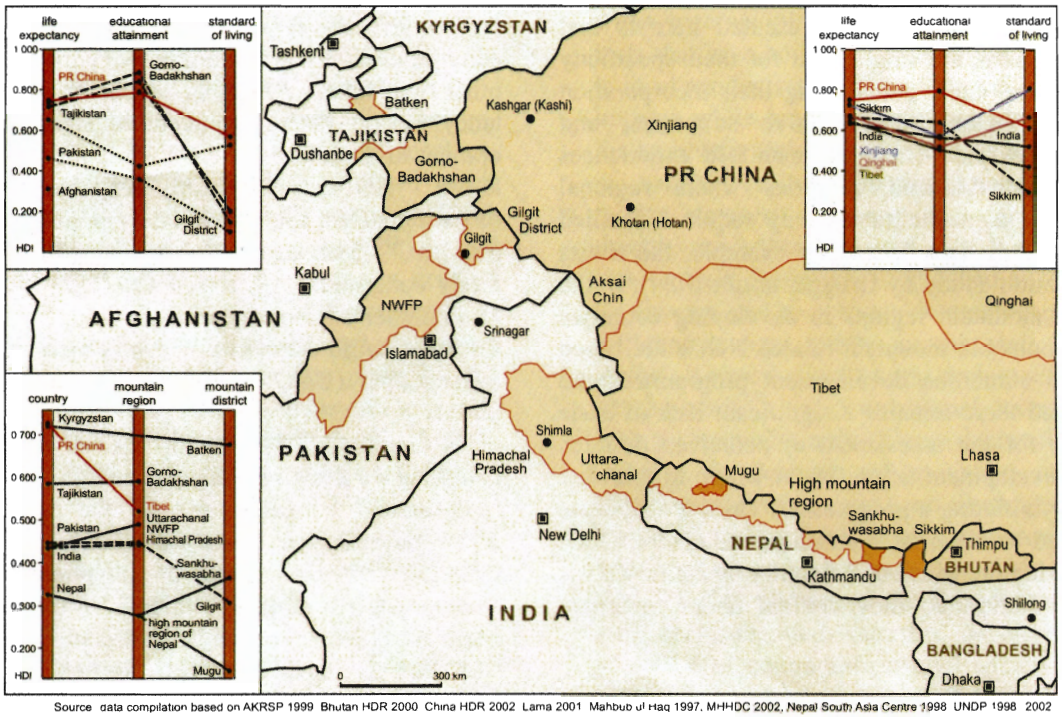
In the case of mountain regions of developing countries we often only have access to aggregate data representing the entire area of the nation state in which the mountain areas are located (Table 1). The range extends from some of the poorest countries, such as Afghanistan and Ethiopia, to the states in the Latin American Cordilleras. In a similar category we find the post-Soviet transformation countries. None is recorded above the middle level (= 0.500 up to 0.800) of the HDI; most African countries are in the lower category (Ethiopia, Uganda, Rwanda), also Afghanistan, Bhutan, and Nepal. Such statistical data permit the comparison between nation states, but they fail to provide the required information about regional disparities within mountain regions and about highland-lowland differences. The dilemma of data evaluation is obvious. What knowledge is available for mountain regions and what kind of conclusions can be drawn?

Regionalized data can be obtained for discussion of a few mountain areas (Fig. 8 upper left diagram). In Tajikistan the difference between the nation state as a whole and the mountain district of Gorno-Badakhshan

Table 1 Development indices for selected nation states with high-mountain regions.

Region	Country	Area in 10^3 km^2	Population (millions)	Life expectancy at birth	Adult literacy rate (%)	Enrolment ratio (%)	PPP (US $)	HDI	HDI rank	GDI	GDI rank
Africa	Ethiopia	1133	73.8	47.6	41.5	36	711	0.367	170	0.355	134
	Uganda	242	26.9	47.3	68.9	74	1457	0.508	144	0.502	109
	Kenya	580	32.7	47.2	73.6	52	1037	0.474	154	0.472	117
	Rwanda	26	8.8	43.9	64.0	55	1268	0.450	159	0.447	122
South and Southeast Asia	Papua New Guinea	463	5.7	55.3	57.3	41	2619	0.523	137	0.518	103
	Myanmar	677	49.5	60.2	89.7	48	1072	0.578	129	no data	not listed
	Bhutan	47	2.1	62.9	74.0	49	1969	0.536	134	no data	not listed
	Nepal	147	26.1	61.0	48.6	61	1310	0.471	136	0.452	106
	India	3288	1,070.8	63.3	61.0	60	2892	0.602	127	0.586	98
	Pakistan	796	151.8	63.0	48.7	35	2097	0.527	135	0.508	107
Central Asia	Afghanistan	652	27.0	46.0	28.7	39	822	0.346	173	0.352	143
	Kyrgyzstan	199	5.1	66.8	98.7	82	1751	0.702	109	0.700	85
	Tajikistan	143	6.4	63.6	99.5	76	1106	0.652	122	0.650	93
Latin America	Guatemala	109	12.0	67.3	69.1	61	4148	0.663	117	0.649	94
	Colombia	1142	44.2	72.4	94.2	71	6702	0.785	69	0.780	55
	Ecuador	256	12.9	74.3	91.0	75	3641	0.759	82	0.721	79
	Peru	1285	27.2	70.0	87.7	87	5260	0.762	79	0.745	67
	Bolivia	1099	8.8	64.1	86.5	87	2587	0.687	113	0.679	89

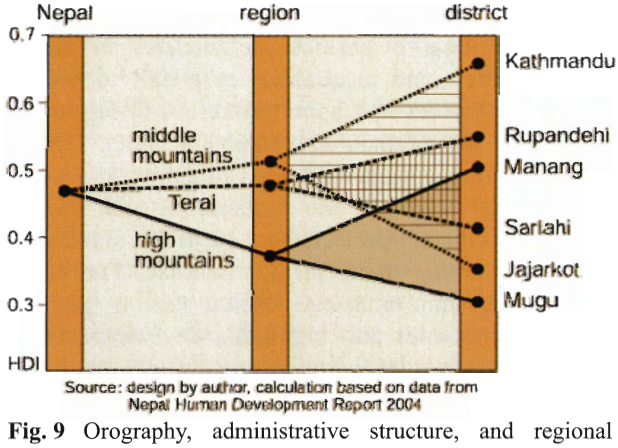
Sources: data mainly given for the years 2001-2003 based on statistics provided by UNDP 2004a, b, 2005; World Bank 2005.



Source data compilation based on AKRSP 1999 Bhutan HDR 2000 China HDR 2002 Lama 2001 Mahbub ul Haq 1997, MHHDC 2002, Nepal South Asia Centre 1998 UNDP 1998 2002

Fig. 8 Human Development Index (HDI) for nation states and mountain districts in High Asia.

appears negligible. Similar observations can be made about India and Pakistan when provinces are compared. The Himalayan state of Himachal Pradesh attains similar HDI values to the average for the Indian Union; the newly created union state of Uttaranchal attains even higher HDI values (Fig. 8 bottom left diagram). Deviations from this pattern, however, become obvious when the Karakoram district of Gilgit is compared with the North-West Frontier Province (incorporating most of Pakistan's share of the Hindukush) and the entire nation state. Gilgit scores much lower in all components, but especially when the standard of living is considered (Fig. 8 upper left diagram). In China, the provinces of Qinghai, Tibet (Xizang), and Xinjiang, which incorporate major mountain areas, range below the country's average for life expectancy and educational attainment (Fig. 8 upper right diagram). The value for the standard of living, however, is above average in Xinjiang and Qinghai (UNDP, 2002). Xinjiang's significant deviation is due to intra-provincial regional disparities. The industrialized northern part of the province ranks high; the mountainous south and west attains much lower levels. Taking size and diversity of some provinces into account, no reliable information can be derived for the Tien Shan, Kun Lun Shan, and Qilian Shan Mountains. The Tibetan Plateau is represented by Xizang. China and India, in their entirety, differ by a considerable margin, while Tibet compares closely with Uttaranchal (Fig. 8 bottom left diagram). The interpretation of these data requires great care. Nevertheless, a growing database and a refined regional approach allow for some conclusions which approach the problems of poverty measurement



Source: design by author, calculation based on data from Nepal Human Development Report 2004

Fig. 9 Orography, administrative structure, and regional disparities in human and gender-related development for Nepal in 1996.

in mountain regions more closely.

The latest Human Development Report for Nepal (2004) indicated a low HDI value (0.471) at the national level while the high-mountain rating of 0.386 is significantly lower than the country's average. Major differences also occur within the high-mountain districts (Fig. 9). For instance, there is a wide gap between the low end (Mugu: 0.304) and the top level performance (Manang: 0.502).

Nepal provides such data on a district-level comparative scale so that it is possible to test the hypothesis that mountain regions are always poorer than the rest of the country.[14] Accordingly, it would be expected that the three zones - Terai, middle mountains, high-mountain region (Fig. 10 (a)) - would demonstrate progressively lower HDI values along a south-west-to-northeast orographic transect. Nevertheless,

the results differ significantly from the hypothetical prediction: the most central districts, such as Kathmandu and Kaski (Pokhara), but also Rupandehi and Morang in the Terai, have the highest scores while Mugu, in the mountainous northwest, remains at the bottom. This gap is underscored with a life expectancy which is more than a third higher in Kathmandu (69 years) compared with that of Mugu (44 years). Estimates for level of education differ even more: only 24% of Mugu's adults are literate compared with 73% in the capital. The GDP per capita is more than three times higher in Kathmandu than in the poorest districts in the periphery (UNDP, 2004a: 141-142). Rhoades (2001) has argued that this information does not reflect the 'real' condition of development. This we believe to be self-evident. Nevertheless, the approach introduced here is a tool widely used in development practice for the diagnosis of shortcomings and scope for improvement. If activities in that field are at stake, then it needs to be discussed what interpretations are possible and what else is required from other indicator systems. Indicators are introduced for different purposes, alternative approaches are welcome and it would support high mountain research if they can be applied for comparative analysis.

The supposition that mountain regions are always poorer than lowland regions was put forward repeatedly during several conferences in the course of the IYM 2002 (Papola, 2004). A closer examination of regionalized data will contest this simplification. If the available data from all districts are aggregated into Nepal's three orographic categories, then the middle mountains obtain the highest HDI value (0.512: that is, above Nepal's average). This is closely followed by the Terai (0.478) while the high-mountain districts are significantly lower (0.386: UNDP, 2004a: 141).

The interpretation of Nepal's regionalized data also demonstrates a difference between the western parts of the country, irrespective of orography, and the urban (and tourism) centres and the southeast. The western districts invariably have lower scores. The urban-rural bias, as well as the East-West disparity, seems to be more prominent than will emerge from an analysis based upon orography (Fig. 10 (b)). Similar disparities are displayed when the gender-related development index (GDI) is applied to Nepal's districts (Fig. 10 (c)), although caution is necessary concerning the quality of the data and the appropriateness of indicators used. The exercise presented here is intended to stimulate discussion about how to illustrate development gaps, regional disparities and, consequently, the eventual uniqueness of regions in the context of mountain geography. Explanations for development gaps need to be sought in the overall economic and socio-political context of a country such as Nepal. The neighbouring Himalayan districts of Himachal Pradesh in India fare significantly better than Western Nepal.

The Hindukush, and especially Afghanistan, appear as blank spots on the development map. Nevertheless, data are available from the first ever Human Development Report (UNDP, 2004b) for Afghanistan that has never previously experienced a population census. Nevertheless, the data, in effect, are guesstimates, so they must be used with great care. Tajikistan and Pakistan as its neighbours have mountain ranges in common, although both have different HDI values (cf. Fig. 8). The Pamirian administrative unit (oblast) of Gorno-Badakhshan compares with the rest of Tajikistan and rates significantly above Pakistan's average. In Tajikistan the Soviet model of modernization accounted for basic infrastructure, sufficient supplies of food and fuel, and overall education, even to the remotest corners. This explains the high values for life expectancy and level of education. The significant difference in the standard of living category demonstrates the socio-economic pauperization of the majority of people following the collapse of the Soviet Union. The economic transformation attempted by the newly independent state did not change this situation to any degree. To date, Tajikistan ranks lowest amongst the group of post-Soviet transformation polities.[15] The current supply situation is extremely poor in contrast to that of the Gilgit District in Pakistan's Northern Areas, although the standard of living index is even lower there. The share of subsistence production in Tajikistan compensates for overall supply deficits. The gaps in the values for Pakistan, as a whole, when compared with Gilgit (cf. Fig. 8), are most significant in terms of life expectancy and standard of living. Both reflect the overall deprivation of the Northern Areas in respect to adequate social infrastructure and business opportunities. The mountain people of the Karakoram feature as marginal groups when entrepreneurship and market participation are highlighted. Only the level of education has improved; this came close to Pakistan's average due to communal, national, and international literacy and education programmes (Kreutzmann, 1996). The scope and limitations of interpretation are illustrated by this brief analysis of a set of available data. Nevertheless, certain conclusions can be drawn. Regional disparities are much too important to be reduced only to a limited set of physical properties. The set of explanations which is needed has to draw mainly from the interaction of humankind with its environment. Surprisingly, the conditions of human action space are shaping the mountain landscape significantly. 'Region' in this context means location within a nation state and its set of rules and regulations, provision of subsidies and welfare. At the same time, 'region' refers to a position within a given mountain area which might be modified by accessibility, incorporation into market relations, exchange patterns and political processes.[16] Therefore, specific sets of indicators might help to provide a more differentiated picture of development patterns in mountain regions.

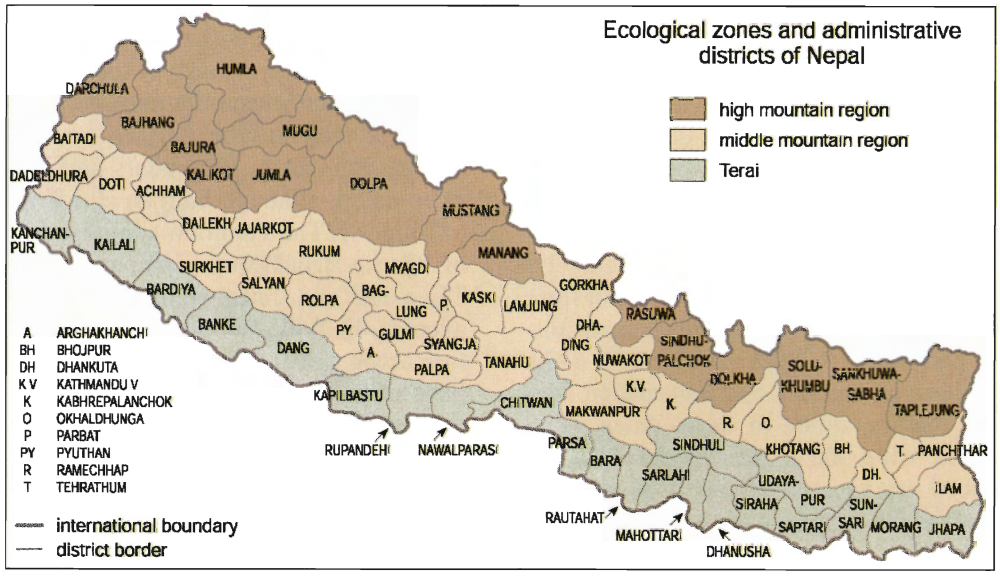


Fig. 10(a) Orography and administration of Nepal.

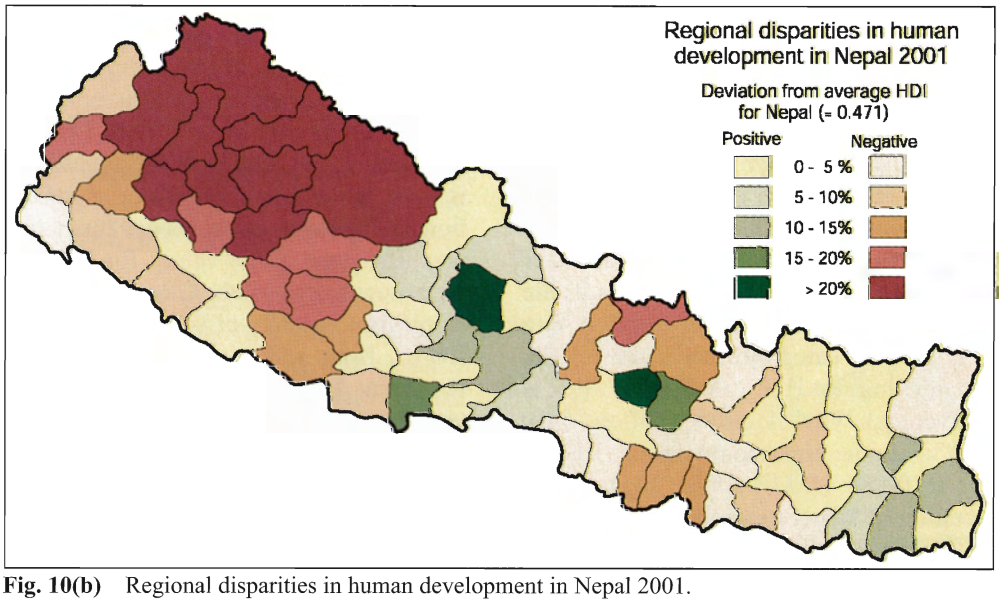


Fig. 10(b) Regional disparities in human development in Nepal 2001.

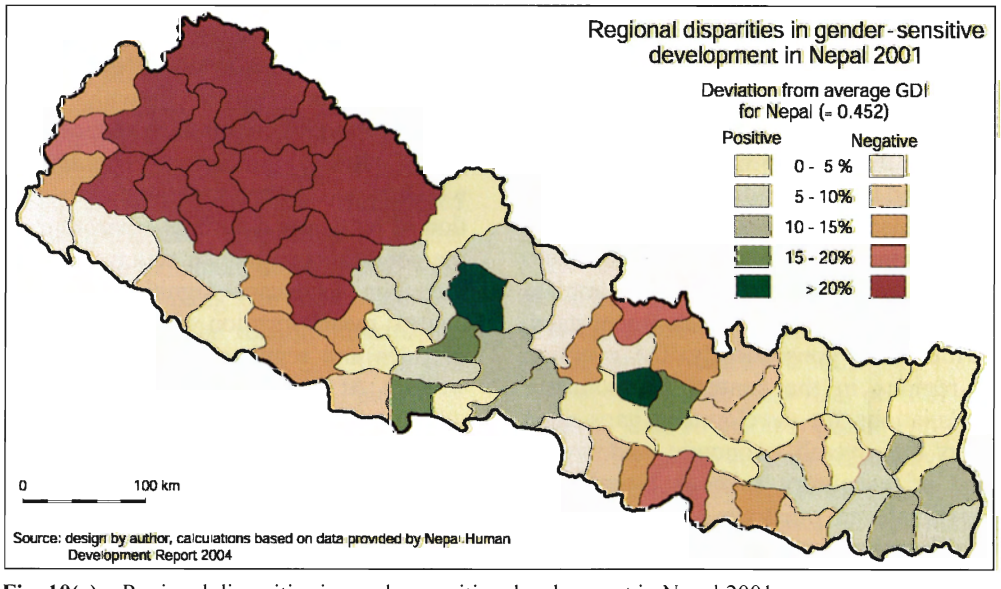


Fig. 10(c) Regional disparities in gender-sensitive development in Nepal 2001.

Notes

1) For the Hindukush-Himalayas, see Li Tianchi, Chalise and Upreti (2001).
2) Bernbaum (1990, 1997), Gratzl (1990).
3) For fieldwork evidence from the Hindukush-Karakoram, see Kreutzmann (1994, 2003, 2004a, 2005a, b, c; for the Himalaya, Gellner, Pfaff- Czarnecka and Whelpton (1997), Bickel and Gaenzsle (1999); for the Caucasus, Joffé (1996), Sahni (1997).
4) For recent case studies on pastoralism in the Hindukush-Karakoram, see the collection in Ehlers and Kreutzmann (2000), where the linkages to overall developments are explored.
5) For the general discussion of livelihood strategies, see Ashley and Carney (1999).
6) Messerli and Ives (1997), Kreutzmann (2000), Price and Butt (2000), Funnell and Parish (2001), Parish (2002).
7) For Nepal, see Ortner (1989), van Spengen (2000); for the industrialized world, the case of Japanese mountain regions prominently illustrates the trans-regional interrelationships (Ajiki, 1993; Okahashi, 1996).
8) The key papers and results were published by Banskota, Papola and Richter (2000).
9) Horta (1995), Kreutzmann (1998, 2000), Nüsser (2001).
10) The results were presented and are available at http://www.dams.org.
11) The Mountain Forum structured an electronic discussion on 'mountains as water towers'; the results are available in its on-line library and include further links to other valuable sources: http://www.mountainforum.org/resources/library/kraua03e.htm, last accessed 24.10.2005.
12) Here I omit a necessary and most probably enlightening discussion about the theoretical and methodological justification and interpretational implications of quality of life indicators: for controversial appreciations, see Kreutzmann (2001, 2004b), Rhoades (2001), and Papola (2004). Practical information about the definition, configuration and mathematical base of the HDI can be found in http://www.undp.org/undp/hdroanatools.htm.
13) The availability of Human Development Reports has gained considerable momentum in recent years: national reports are now available for Afghanistan, Bhutan, China, Tajikistan, Kyrgyzstan, Nepal, all of which are used in the discussion here. Reports for a number of Indian provinces, including Assam, Sikkim, Nagaland, and Himachal Pradesh are now also available, and regional reports for South Asia have been published by the Human Development Centre in Islamabad, Pakistan.
14) Data are taken from Nepal Human Development Report 2004.
15) For a more detailed account of the transformation in post-Soviet Gorno-Badakhshan, see Mamadsaid and Bliss (1998), UNDP (2003), Bliss (2005).
16) Bohle and Adikhari (1998), Blaikie and Muldavin (2004), Breu, Maselli and Hurni (2005), Byers (2005), Kreutzmann (2005 b, c, d).

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