



# HIMALAYA, the Journal of the Association for Nepal and Himalayan Studies

Volume 16  
Number 1 *Himalayan Research Bulletin No. 1 &  
2*

Article 8

1996

## Indigenous Labour Arrangements and Household Security in Northern Pakistan

Ken I. MacDonald  
*University of Toronto*

Follow this and additional works at: <https://digitalcommons.macalester.edu/himalaya>

### Recommended Citation

MacDonald, Ken I.. 1996. Indigenous Labour Arrangements and Household Security in Northern Pakistan. *HIMALAYA* 16(1).  
Available at: <https://digitalcommons.macalester.edu/himalaya/vol16/iss1/8>

This Research Report is brought to you for free and open access by the DigitalCommons@Macalester College at DigitalCommons@Macalester College. It has been accepted for inclusion in HIMALAYA, the Journal of the Association for Nepal and Himalayan Studies by an authorized administrator of DigitalCommons@Macalester College. For more information, please contact [scholarpub@macalester.edu](mailto:scholarpub@macalester.edu).



# Indigenous Labour Arrangements and Household Security in Northern Pakistan

Ken I. MacDonald

Department of Geography, University of Toronto

## Introduction

How any community provides a material basis of security for its members is a function of the allocation of time and resources (*i.e.*, labour) devoted to the minimization of risk. In this paper, I argue that the time and effort devoted to the minimization of risk is not distinct from, and is indeed integral to, the organization and practice of everyday life. Labour arrangements exist as an important element of social and economic organization and thus affect the vulnerability or security of individual households. Yet this relationship between labour arrangements and household security, like many aspects of smallholder household organization, has generally been ignored within the study of natural hazards and vulnerability (MacDonald 1994). In this paper, I refer to a variety of labour arrangement strategies in the Karakoram mountain village of Askole to illustrate how particular labour arrangements, and the relations of authority that sanction them, reduce the vulnerability and, *de facto*, increase the security of household members. The argument I present relies on certain premises drawn from recent research in natural hazards which confronts and reformulates traditional conceptions of risk and hazard (Hewitt, 1983, Watts 1983, Douglas 1992). These premises include:

a) that specific hazards in any environment are an intrinsic part of that environment, and that societies with a long history of habitation in those environments have developed relationships which reduce the threat to production and reproduction posed by environmental fluctuations;

b) the mediation of environmental relations which affect vulnerability of individuals and communities both flow from, and modify, the conditions of everyday life;

c) the allocation of time and resources (*i.e.*, the effort or labour) devoted to the avoidance or minimization of risk, and the ability to respond to hazard flow from the routinized and repetitive strategic conduct of individuals who typically reside within the

social collective of a household and fall under the governance of its institutions of authority; and

d) that as human-environment relations are largely structured through the intentional and active transformation of nature for survival, labour is obviously a key element in the mediation of environmental relations that minimize risk.

## The Physical and Social Context of Production in Askole

Askole (75°50' E 35°41' N), the uppermost settlement in the Braldu valley of northern Pakistan, is situated at an altitude of 3050 m on a large terrace fan about 200m above the Braldu river (Fig. 1). With a population of about 370, Askole has, until recently, remained relatively isolated from much of the modernization and planned development occurring throughout the Karakoram range. The economy of the village is primarily based on subsistence agropastoralism. Production occurs on terraced fields near the valley floor and livestock follow vertical transhumant cycles to high altitude pastures. Wage labour, however, has become increasingly important in the regional economy since partition from India. Villagers acquire cash primarily through their service to the adventure tourism industry. Due to its close proximity to a number of the world's highest peaks and longest glaciers, the area has become increasingly popular with climbers and trekkers. Despite this, most men are only sporadic participants in the adventure tourism industry. All villagers have access to the land and strategic resources they require for survival.

The physical situation of Askole is typical of many Karakoram villages, but would definitely be considered hazardous in conventional terms. The nucleated settlement and household-controlled fields are contained between a steep rock wall to the north and a river-cut cliff to the south. The rock wall is prone to recurrent mass movements and frequent landslides along the river-cut cliff pose a significant land-loss hazards to village inhabitants. Askole is also located in a single cropping

zone and has a regionally short growing season of approximately 140 days. Livestock travel to high altitude pastures in various stages between late July and late October. Fieldwork, however, extends year round, with the most intensive period between mid-April and mid-October. The village, like many Karakoram communities, is located in an arid zone with average growing season precipitation of 30mm. Production, then, is completely dependent on irrigation from high altitude snow and ice melt. The short growing season leads to a significant problem with late spring and early autumnal frosts, as well as potential inequalities in the seasonal distribution of water. Other recurring damaging events include mass movements, wind storms, crop diseases, and epidemics.

Cropped land is held privately within the household, whereas grazing land is held as a village commons, with equal access to all villagers. The household is the basic productive and social unit in the village, yet all households experience periods of growth and decline so that, although large extended households are seen as the ideal type, the actual distribution of household types in the village ranges from single nuclear families to four-generation joint extended family households. This waxing and waning of household status results in the existence of households with a varied resource base (*i.e.*, resource-rich and resource-poor households) and a differential ability to cope with seasonal labour

bottlenecks and sudden labour demands. Outside of the household, lineage allegiances are quite strong in the village, and while there is a clan structure - villagers belong to one of 5 clans - the nucleated order of settlement in Askole supports strong social and economic relationships on the basis of neighbourhood rather than clan allegiances.

### **Risk Mediation and Rational Diversity**

Concordant with its physical situation, Askole's farming system effectively reduces risk and accommodates most environmental problems either through specifically targeting a hazard such as erosion, or through social and ecological practices which spread risk across the ecological and social surfaces of production. The characteristic risk-reducing feature of Askole's agro-ecology is a rational diversity in the ecological, economic and social organization of production.

In reviewing the means employed to mediate risk and absorb and deal with hazards in Askole, I distinguish between agro-ecological practices and social practices. Few of these practices, however, are particular to any specific damaging geophysical agent. Rather, a rational diversity means that risk is mediated and a broad range of hazards can be prepared for, through specific ecological practices (*e.g.*, intercropping or spatially dispersed fields) (Table 1).

**TABLE 1**  
**Selected risk mediating agro-ecological practices in Askole**

<p><b>•CROP PRODUCTION</b></p> <ul style="list-style-type: none"> <li>• Dispersed land holdings.</li> <li>• Agro-pastoralism with mixed cropping.</li> <li>• Heterogeneous cropping landscape.</li> <li>• Intercropping.</li> <li>• Polyvarietal planting of staple crop including an early variety.</li> <li>• Delayed planting of short-duration secondary crop.</li> <li>• Crop rotation.</li> <li>• Erosion reduction <ul style="list-style-type: none"> <li>terracing of slope</li> <li>division of fields into irrigation beds</li> <li>planting of vegetation in gullies</li> <li>construction of step terraces in gullies</li> <li>field reclamation techniques.</li> </ul> </li> <li>• Co-ordinated experimentation with new innovations and planting material.</li> </ul> <p><b>• LIVESTOCK PRODUCTION</b></p> <ul style="list-style-type: none"> <li>• Species diversity.</li> <li>• Vertical transhumant cycles.</li> <li>• Spatial dispersal of pastures.</li> <li>• Communal tenure of pastures.</li> <li>• Flexible supervision of livestock at pasture.</li> <li>• Co-ordinated movement of collective village herds and flocks.</li> <li>• Herd size limited by ability to stall feed animals.</li> </ul>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

I do not mean to promote an uncritical view of Askole, its inhabitants, their farming system, or their capacity for environmental management, but it is apparent that *Askolepong* operate a farming system, with strong risk-reducing elements, which is well prepared to buffer periodic threats to a subsistence food supply. These practices, however - a diversified and risk-reducing adaptive agriculture - cannot exist apart from, and indeed is structured through, the organization of society.

While agro-ecological practices deal with the more immediately apparent or dangerous hazards, the responsibility for dealing with those less 'knowable' risks or hazards is unloaded onto institutional processes (Douglas and Wildavsky 1982). In this way, regardless of the degree of certainty surrounding environmental conditions, individual security is maintained through established social relationships and the expectation, through subscription to a set of collective values, that one's kin, friends and neighbours will be of assistance in the event of a serious crisis which poses a threat to subsistence or household reproduction (Douglas 1978, Douglas and Wildavsky 1982).

In Askole, the household is the primary locus of security which, depending on size, demographic

constitution, and political status, provides varying degrees of security for its members. Within the extended family households, individual security is enhanced through co-operative sharing of productive tasks which reduces the threat of subsistence crises for individuals and constituent families. It is also the normative status of the household which ties individuals into networks or frameworks of social relationships which can provide access to shelter and strategic resources in the event of a crisis. In Askole, these relationships operate first as networks of mutual aid which are unique to particular households (*e.g.*, established through ties of consanguineal kinship, marriage, friendship or contract), and second, as relations and moral obligations of cooperation and assistance centred on the wider society (*e.g.*, reciprocal arrangements between lineage households, neighbours, and normative expectations of assistance at the village level, such as voluntary workgroups). This social organization of the village establishes and maintains certain social relationships and practices which can help a household to retain viability in the face of a broad spectrum of crisis-inducing circumstances. In short, social organization in Askole emphasizes social reproduction through the continuance of the household as the locus of security for individual villagers (Table 2). It is a survival vehicle (Adams 1981).

TABLE 2  
Selected risk mediating social practices in Askole

<ul style="list-style-type: none"> <li>• Nucleated settlement form.</li> <li>• Multi-generational complex households.</li> <li>• Extended family households as locus of production, distribution and consumption.</li> <li>• Economic diversification within household.</li> <li>• Collective ownership of productive resources within the household.</li> <li>• Moral philosophy of self-help and self-reliance within household.</li> <li>• Absence of wife seclusion.</li> <li>• Lineage adoption and fosterage.</li> <li>• Collective labour arrangements <ul style="list-style-type: none"> <li>voluntary work groups</li> <li>communal work groups</li> <li>stock associateships</li> <li>threshing partnerships.</li> </ul> </li> <li>• Codified norm of household turn-taking in communal duties.</li> <li>• Strategic marriage alliances.</li> <li>• Obligations of mutual aid and norms of balanced and generalized reciprocity based on agnatic and affinal kin relationships.</li> <li>• A ceremonial polity which binds social ties, redistributes wealth and affirms social commitments to the village ethic.</li> </ul>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

### Risk Reduction, the Household and Labour Arrangements

For the most part, fieldwork and the labour it demands are the responsibility of individual households. However, given the seasonality of production in the village and the dispersed spatial surface of production, situations do exist where labour can be a constraining factor in maintaining subsistence. To overcome these

constraints, conventions of labour allocation within society aid village households. These operate both in support of routine activities and to overcome more regular periodic labour shortages. Outside of the physical context of the household, then, it is the understood mutual obligations of kinship and co-residence in the village that mitigate the vulnerability of households. These obligations are rooted in different

social foundations but are manifested in various forms of shared labour arrangements such as those outlined below (Table 3).

### **Labour Arrangements in Support of Routine Fieldwork**

Under the rubric of social obligation, a range of networks outside of the household may be relied upon to provide labour for day-to-day activities and to provide buffers against crisis. The most specific and reliable of these, however, are commonly found amongst close patrilineal kin such as the localized lineage.

*Cross-household Lineage Partnerships* are effective during periods of peak labour demands when labour from large lineage households is frequently pledged to labour-poor lineage households. Individual households

may operate in co-operative clusters but these arrangements do not 'free' household labour to any great extent, and definitely not to a sufficient degree to permit full participation in alternate economic opportunities such as portering. But they do help to offset the material effects of low producer/consumer ratios for small families, and minimize the potential of shortage when faced with a sudden demand for labour. Through co-operation in daily tasks, a commitment to lineage security and survival is constantly expressed. More importantly, this continual expression of mutual reliance reflects an absolute relationship in which the combined resources of lineage households become the last line of defense for any member-household facing an impending or actual subsistence crisis.

**TABLE 3**  
**Risk-mediating Labour Arrangements in Askole village**

<ul style="list-style-type: none"> <li>• <b>Labour Arrangements in Support of Routine Fieldwork</b> <ul style="list-style-type: none"> <li>• Cross-household Lineage Partnerships</li> <li>• Cross-household Extra-Lineage Partnerships</li> <li>• Individual Extra-Kin Agreements or Contracts</li> </ul> </li> <li>• <b>Labour Arrangements in Support of Periodic Tasks</b> <ul style="list-style-type: none"> <li>• Co-operative Work Groups</li> <li>• Affinal Kin Obligatory Labour</li> <li>• Clan-based Obligatory Labour</li> </ul> </li> <li>• <b>Communal Labour Arrangements in Support of Seasonal Tasks and Contingent Needs</b> <ul style="list-style-type: none"> <li>• Public Service Duties allocated through the metanorm of <i>ress</i> (turn-taking)</li> <li>• Communal Work Groups</li> </ul> </li> </ul>
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

*Cross-Household Extra - Lineage Partnerships* operate much like lineage partnerships and are effective during times of peak labour or resource demands (eg., harvest and threshing). Formal cross-household partnerships exist to provide resource or labour poor households with access to the wider and more balanced reserves of the village.

*Individual Extra-Kin Agreements or Contracts.* Outside of kin based obligations, rights and duties, villagers occasionally engage in individual agreements or contracts (*kha ngis byet*; lit. the work of two mouths). These arrangements can help to overcome labour shortages or subsistence crises for households that lack access to support from lineage mates. They are also used to obtain support for non-traditional activities. In Askole, norms of reciprocity apply only to elements of the traditional household economy and do not apply to market-oriented activities such as shop-keeping and craft production. Increasingly, these

contracts tend to resemble emergent patron-client relationships within an expanding market economy.

These arrangements are far from mutually exclusive in relation to any particular task and, at any given time can all be found regulating the same task within different households. For example, the labour required to manage livestock while at pasture households may be arranged through lineage partnerships, extra-lineage agreements and contracts.

### **Labour Arrangements in Support of Periodic Tasks**

While the arrangements listed above certainly apply to all contingencies, alternate forms of labour arrangement can be called on periodically. These rely on both village and extra-village relationships.

*Co-operative Work Groups* come together on an *ad hoc* voluntary basis whenever they are required by a household, usually to repair household lands and

buildings. Assistance is given on the basis of generalized reciprocity (and rarely if ever refused) and permits some households to overcome limits placed on their ability to respond to hazard by a lack of labour. Such co-operative arrangements help to buffer the potential marginality of smaller households with poor access to alternate economic activities (indeed they reduce the potential increase in vulnerability created through household partition which implicitly reduces household labour supply).

*Affinal Kin Obligatory Labour.* Aside from direct agnatic ties and lineage obligations, established relationships with affinal kin can be relied upon to help buffer subsistence crises. These are maintained and strengthened through periodic visits to the spouse's natal household, and a continuing commitment to these relationships is partially expressed through the practice of cross-cousin marriage. These affinal relationships can be important in overcoming seasonal labour bottlenecks or resource shortages.

*Clan-based Obligatory Labour* Beyond relying on the assistance of localized lineage members and affinal kin in the case of need, households can expect to receive a certain degree of assistance from fellow clan members. In general, such help includes access to resources and labour, but this aid forms a part of a balanced reciprocal relationship. Notably, given Askole's nucleated spatial structure, the reliability of clan-based reciprocity diminishes with kin and spatial distance and a household may find more help from unrelated neighbours than from relatives living at the edge of the kin network.

### **Communal Labour Arrangements in Support of Seasonal Tasks and the Contingent Needs of the Village**

*Communal Work Groups* are formed through sanction both at stipulated times and as needed to provide the labour required to maintain village infrastructure. These continual efforts to maintain and repair village resources can be seen as an 'everyday' passive approach to risk management and the protection of vulnerable land. But these co-operative groups are also important in effecting a collective response to hazard, as they permit a rapid response to environmental fluctuations. These groups not only alleviate periodic labour shortages, but also curtail the extent of loss in the event of hazard and allow the village to repair damage and return to a focus on production within a relatively short time following a crisis, without assistance from external agencies.

*Public Service Duties allocated through the norm of res* (*turn-taking*). The labour supply for a wide range of communal tasks is governed by the norm of **ress** (*turn-taking*) Within the political domain, this process is a means of "abjuring tyrannical rule by the few over the many", or of avoiding the control of one social group by another (Parker 1991; 354). As the responsibility for administration and security of the

village is diffused among all village households over time, *ress* is the process which symbolizes total community involvement in the exercise of authority, encourages civic responsibility and social integration, and reciprocally binds the household to the village. It is largely through the role of *ress* in allocating labour that the welfare and social reproduction of the household is inextricably bound to the welfare and social reproduction of the village.

### **Risk Reduction, Labour and Household Authority**

To this point, I have attempted to illustrate that a risk-reducing capacity in Askole exists and has historically emerged, in part, through the capable and knowledgeable actions of the villagers - that is, through their management of labour. However, these actions do not operate in a structural void. Ultimately, the risk-reducing characteristics of specific ecological or social practices are realized through the intelligent allocation of time, tools, and resources. This management is the responsibility of local institutions of authority. It is these institutions that authorize and allocate the necessary time, energy and resources, and sanction the practices and social forms that create a 'risk averse utility surface' (Watts 1983), and attempt to avoid pre-conditioning the community to disaster.

There are two primary institutions of authority in Askole which directly affect decision making and the allocation of household labour and resources. These are the household head (*khang-go*) and the village 'manager' (*yul ltumpa*). A third institution of authority, the village headman (*trampa*), figures prominently in communal life and extra-village relations, but has little direct control over the allocation of village labour or resources. Notably, these are all what I call 'traditional' institutions of authority meaning that they have not been superimposed by the state, but rather have historically derived legitimacy from within the community.

#### ***Khang-go***

Within the household, the *khang-go*, along with his female equivalent the *dakhmo*, manages household resources, authorizes work projects and allocates the time, labour and materials needed to complete those projects. He is the primary decision maker in the household, and within the context of local knowledge, the constraints of traditional customs and norms, (*e.g.*, gender division of labour) and overarching authority relations, he determines, on a seasonal basis, the productive landscape of the household - a landscape that I have described as risk minimizing. In both economic production and social organization, the *khang-go* plays a central role in perpetuating risk reduction and social security.

Along with maintaining a constant risk-minimizing surface of production, the *khang-go* also plays a role

during hazardous events (*e.g.*, frosts) by reallocating the time, labour, tools, and resources among household projects and mobilizing them to curtail the impending or actual crisis. It is also the responsibility of the *khang-go* to contribute household resources to communal efforts to deal with hazards. Beyond this, the *khang-go*, operating within certain well-defined cultural criteria, shapes the economic diversity of households by deciding which members can participate in the porter trade, or engage in the production of crafts. He also has ultimate, but accountable, authority over the disbursements of the proceeds from these activities which can be used to help avert or buffer the impact of a subsistence crisis.

In summary, from the perspective of the household, the *khang-go* defines institutional projects, and structures those activities responsible for maintaining the agro-ecological and social practices that reduce risk and provide a degree of security. In doing so, he is integral to minimizing the vulnerability of the household and its members.

### *Yul ltumpa*

The broader concerns of labour allocation in the village are regulated by the village 'manager' (*yul ltumpa*), an institution charged with regulating seasonal life in the village. *Yul ltumpong* (pl.) are selected annually, on the normative principle of *ress*, from a rotational schedule of households. In Askole, four men (usually household heads) serve as *yul ltumpong* for a one year term. Responsibilities of *yul ltumpong* include the pronouncement and enforcement of village laws, the vigilant monitoring of field and pasture conditions during the agricultural season to ensure compliance with norms, and the remedy of infractions before they result in damage or conflict. They are also responsible for regulating access to community resources such as irrigation water and pasture. In this sense, then, *yul ltumpong*, are decision makers who govern the pace of production for the village as a whole.

The authority of *yul ltumpong* over the definition and realization of communal projects, and their ability to impose sanctions to ensure the completion of those projects, provide the capacity to respond effectively to environmental events which threaten social reproduction and community viability. In response to any hazard, they have the ability to authorize new projects and commandeer and allocate labour and resources to curtail the damage. This capacity is also related to their sanctioned control over the seasonal relations of production, and the management of communal resources. In carrying out these responsibilities, they continually provide a degree of security by maintaining risk reducing practices. In their exercise of authority, then, *yul ltumpong* provide a measure of security and either minimize or attempt to equalize vulnerability among all village households.

### Conclusion

The main points that I want to make here are:

a) that both the mediation of risk and the potential for disaster, in small, subsistence oriented communities like Askole stem from the conditions of everyday life; and

b) that the risk reduction, or the security system of material life, that is practiced in everyday life, specifically in those institutional projects aimed at ensuring seasonal agricultural production and the social reproduction of the household, are realized through durable labour arrangements and reliant on the implemented decisions of agents of authority.

I must add, however, that the ability to implement decisions is dependent upon the continued legitimation of these agents which is supported, in part, by their expressions of commitment to a morally based set of collective values held by all village residents. There are, however, differing degrees of participation, with young men demonstrating less interest than old. Evidence of this emerging conflict is becoming increasingly clear in Askole largely through the activities of the adventure tourism industry which, by prioritizing values of self-interest, and notions of private goods as opposed to communal good and collective ownership, has set up a trend toward civil privatism which is in conflict with collective values. Local development initiatives also threaten to disrupt contextually rational practices and to confound the authority of traditional institutions.

These threats to collective values and rational practice are manifest, partially at least, as a challenge to the legitimacy claims of 'traditional' institutions of authority (evident, for example in a resistance to authority and premature partitioning of households). This in itself, is not necessarily harmful when it occurs in isolated cases - *i.e.*, the case of a 'bad' leader; but here it is the legitimacy of the individual, not the institution, that is being challenged. If we accept the assertion that legitimacy underlies social stability, as expressed in its ability to adapt to strains or changes confronting it, when this challenge becomes consistent, a legitimation crisis, to borrow from Habermas (1975), erodes the ability of the social system to mediate risk or uncertainty and increases the vulnerability of household members to subsistence crises.

The ability to mediate risk through labour and minimize the vulnerability of individuals is certainly a function of the labour arrangements that exist in a given context. But more importantly, these are reciprocally bound to a set of collective values which maintains a common interest in the good of the 'Other' and to the ability of sanctioning institutions to maintain those arrangements. The durability of risk-reducing labour practices is challenged when the values and authority which sanction them come under threat. This threat seems to be reaching the village of Askole now. I presume that it has already reached numerous other

Himalayan-Karakoram communities. This, however, is not necessarily a dismal picture, for it is the communal response to this threat that will condition the future vulnerability of Himalayan-Karakoram communities.

### Acknowledgements

Material presented in this paper was collected with the financial support of the International Development Research Centre (IDRC) and the Canadian International Development Agency (CIDA). I am grateful for this assistance. Thanks are also due to the people of Askole and numerous individuals throughout Baltistan.

### References

- Adams, R.N. (1981) *The dynamics of social diversity: notes from Nicaragua for a sociology of survival*. *American Ethnologist*, 8(1), 1-20.
- Bourdieu, P. (1977) *Outline of a Theory of Practice*. New York: Cambridge University Press.
- Douglas, M. (1978) *Environments at risk*. In M. Douglas (ed) *Implicit Meanings: Essays in Anthropology*. (pp. 230-48). London: Routledge & Kegan Paul.
- Douglas, M. (1992) *Risk and Blame: Essays in Cultural Theory*. London: Routledge.
- Douglas, M. and A. Wildavsky (1982). *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Berkeley: University of California Press.
- Habermas, J. (1975) *Legitimation Crisis*. Boston: Beacon Press (tr. by T. McCarthy).
- Hewitt, K. (1983) *The idea of calamity in a technocratic age*. In K. Hewitt (ed) *Interpretations of Calamity from the Viewpoint of Human Ecology* (pp. 3-30). Boston: George Allan & Unwin.
- MacDonald, K.I. (1994) *The Mediation of Risk: Ecology, Society and Authority in a Karakoram Mountain Community*. Unpublished Ph.D. dissertation. University of Waterloo, Waterloo, Ontario Canada.
- Parker, B. (1991). *Beyond the vote: responses to centralization among Nepal's Marpha Thakali*. *Human Organization*, 50(4), 349-57.
- Watts, M. (1983) *On the poverty of theory: natural hazards research in context*. In K. Hewitt (ed) *Interpretations of Calamity from the Viewpoint of Human Ecology* (pp. 231-62). Boston: George Allan & Unwin.

