Cultural diversity in the mountains: Issues of integration and marginality in sustainable development

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I. INTRODUCTION

Over the last two decades the mountain systems of the world have received considerable attention from the development and environment communities. Since 1990 this interest has received an impetus with the establishment of the IUCN Commission on Mountain Protected Areas and the inclusion of Article 13 (Fragile Mountain Environments) of Agenda 21 at the United Nations Conference on Environment and Development (UNCED). Today there is growing awareness at policy, research and activist levels that the well-being of lowland areas is intricately connected to the sustainable conservation of highland regions.

In addition to their rich biodiversity, mountains also contain a diversity of cultures, subsistence types and traditions. This tremendous variety has emerged as an evolutionary response to the niche-specificity of steep mountainous topographies, their inherent isolation and the necessity to skillfully maximize production whilst at the same time minimizing risk and conserving resources.

Over the millennia, these myriad highland traditions have combined with the sense of the sacred inspired by mountain landscapes to capture the imaginations of travelers, poets, and pilgrims alike. Birthplace of the gods, home of some of the sites most sacred to the world's religions, and the sources of life-giving water systems, the mountains play a vital role in the spiritual as well as practical lives of millions of people throughout the world.

In recent years there has been a growing recognition that there is much to be learned from the ways that indigenous peoples have traditionally managed their social and natural environments. Local experiences and practices have an important role to play in illuminating some of the central questions driving mountain development and policy regarding self-regulating development strategies. This paper explores the convergence of aspects of mountain cultural diversity with issues of sustainable and equitable development in highland areas, discussing on the myriad ways in which "culture" - as a system of behaviour through which communities interact with and shape their wider physical and social environments—can help to articulate and implement sustainable development programmer, identifying current issues, constraints and opportunities reflected in current approaches.

One caveat is in order. This discussion does not rest on a static conception of culture. Instead it acknowledges that "culture" broadly defined represents" a complex set of practices in…constant tension between the old, as expressed in ideological or social norms, and the new, represented by people's attempts to create new patterns of though and action." (Lichtenberg, 1994:276). The appeal of "tradition" and "culture" rests in their aesthetic appeal, the richness, spiritual quality and diversity of forms that is all too sadly absent in the homogeneity characteristic of modern urban and industrial ways of life. However, their intrinsic value also has to be contextualized against the divergent interests of the individuals and groups who are involved and / or affected by them.

A more holistic conceptualization of the interrelationships between environment, population, social structure and culture has come to assume increasing importance as processes of development speed up and become more complex. Over the course of this century all but the most isolated of mountain communities have been drawn into the wider orbit of the cash, political and cultural economy as a result of road construction, the expansion of markets, policy interventions, and even due to wars and insurgencies. This reduction of spatial isolation between highlands and their surrounding lowlands has offered communities improved physical and occupational mobility, access to various social services, and raised economic aspirations. This inter-regional integration, however, also carries within it the kernel of marginalization as highland communities increasingly look to more dominant external markets and services for resources, inputs and even religio-cultural values.

The socio-economic and ecological transformations occurring in the mountains cannot be separated from those occurring in the plains. Since so many facets of mountain communities' lives are shaped in distant corridors of power and decision making, an examination of local cultural ecology must also be rooted in an analysis of the larger political economy and development interventions. This discussion, thus, invites researchers, academics, activists and practioners to envision and implement creative, sustainable and equitable ways to protect the integrity of mountain cultures whilst also ensuring communities' access to the benefits of development. Thus, the challenge is how to tap the advantages of mountain environments as well as minimize the threat of new sources of marginalization resulting from increased accessibility.

Some of broad areas of enquiry detailed in this discussion include:

* Elaborating the regional and local-specific needs, constraints and links between highland social and physical systems; documenting specific systems of environmental and technical knowledge; delineating the nature and extent of ecological degradation in specific areas, identifying the practices, customs, beliefs that contribute to sustainable as well as unsustainable resource use and management;

* Identifying ways to encourage positive aspects of traditional farming practices, complementing subsistence production systems via the rehabilitation of local ecologies and diversification of local employment opportunities.

* Identifying local institutions and local adaptive strategies and the role they do and can play in safeguarding natural resource bases; helping to strengthen them by incorporating them into constructive and sustainable participatory projects.

* Developing greater sensitivity to variations amongst and within communities and their specific responses to change; focusing on how certain groups, specifically women, the elderly, low castes and the impoverished, are affected by processes of change; articulating ways to effectively draw them into community-based initiatives.

* Examining how gender and generational aspects of intra-household dynamics shape aspects of decision-making, access to resources, labour-allocation strategies; working positively with the fact that mountain populations are demographically weighted in favour of women, particularly in the context of their central roles in production and the reality of male out migration.

II. CULTURAL DIVERSITY IN THE MOUNTAINS

Over the millennia highland communities have devised highly sophisticated ways to take advantage of niche and species diversity, minimize labour and risk, and contend with resource fragility. This is reflected in the diversity of subsistence strategies: agricultural practices such as trenching, terracing, and ridging; systems of irrigation suited to conditions of low rainfall; use of medicinal plants; and a wide range of management systems relating to forest, grassland and water resources. Forms as different as the shifting agriculture (jhuming) practiced in the highlands of Sikkim and Arunachal Pradesh of northeastern India, the sedentary terraced cultivation typical of the middle Himalaya of India and Nepal, and the transhuman pastoralism found at the higher elevations of Tibet, represent unique adaptive responses to the highly specific conditions, needs and constraints exist within each of these highland environments.

This diverse low intensity utilization draw on specific cultural practices and beliefs, perceptions of ownership and responsibility and decision making mechanisms which are often closely wedded to local religious and spiritual systems. Representing a rich heritage of local environmental wisdom collected and refined over the centuries through a process of trial and error, these practices are passed down from one generation to the next (Paranjpye, 1988; Shiva, 1988).

Over the past two decades a multidisciplinary body of research has highlighted remarkable similarities in patterns of social organization, land use and resource management practices amongst highland populations in various parts of the world notwithstanding differences of regional cultural and political history (English, 1985; Guillet, 1983; Orlove, 1985; Rhoades and Thompson, 1975). Ecological factors clearly play an important role in constraining social and economic organization and account for the remarkable convergence between subsistence type and environment in mountainous regions throughout the world. However, the lack of correspondence between forms in many instances also invites attention to the impact that extra-local forces, both historical and contemporary, have had on local structures and relationships.

There are a number of features characteristic of mountain environments: inaccessibility, marginality, small-scale production systems that often combine multiple production zones, communal systems of resource management, flexible social relations, and women's dominant role in production.

a. Inaccessibility:

Influenced by verticality, altitude and steep terrain, inaccessibility is one of the single most influential factors shaping the lives and livelihoods of mountain inhabitants. This aspect of geographic inaccessibility has evolutionarily and historically played a protective role, helping to maintain the ecological and cultural integrity of highland physical and social systems. Through history mountains have served as sanctuaries to peoples fleeing aggression, their remoteness enabling communities to maintain a considerable degree of autonomy. Thus, in earlier centuries the Himalaya served as a "refuge" for a number of distinct cultural groups; indigenous rulers exercised power over localized and fragmented areas, and unification into larger political entities occurred considerably later than in areas in the adjacent plains. Rather than political unity, throughout much of the low and midland Himalaya it was links to the Hindu "Great Tradition" resulting from migration which provided a compelling force for cultural unification

III. THE DEVELOPMENT ENCOUNTER: FORCES OF CHANGE

As "island habitats" mountains have historically been considerably more protected from external forces than other ecosystems. For centuries communities made their livings through a combination of subsistence farming, pastoral activities and barter, focusing their adaptive strategies on local ecological systems and resources.

The simplicity of highland lifestyles has been coming under considerable pressure to change over the course of the past century, and particularly in the last four decades. The increasingly external nature of much of this change has, in turn, considerably transformed interrelationships between mountain

communities and their physical environments, patterns of natural resource use and management, and the very nature of highland-lowland linkages.

In the Himalaya, a key factor in improving conditions of accessibility and the opening up of hitherto remote regions was large-scale road construction in the early 1960s onwards. Initially undertaken to meet military and strategic needs of states sharing common boundaries in the high mountains, a by-product of this development was the expansion of local markets and entrepreneurial activities as well as improved access to external markets.

Accessibility by road has had a profound impact on subsistence farming. Over the past decades economic development in the wider Himalayan region has come to be defined by the construction of hydro-power projects and other large infrastructure initiatives, commercial and illegal logging, mining of minerals and other extractive procedures, and mass tourism. Commercialized horticulture and agriculture have been introduced in agro-ecologically resource- rich areas of the middle mountains, while the foothills have witnessed some industrial growth. Throughout the Himalayan arc, new economic linkages between the highlands and the plains, along with improved prospects for mobility, have contributed to the emergence of small urban areas.

Contemporary patterns of engagement with larger political, economic and cultural systems have opened up new opportunities for mountain communities. Households have benefited from the expansion of off-farm employment opportunities, access to education, health care facilities and other services. Shortfalls in subsistence production no longer need be disastrous as foodstuffs can now be purchased in local markets.

Heightened commercialization in the mountain context is, however, something of a double-edged sword. The presence of markets and access to cash incomes mean that communities no longer need to be self-sufficient. In many instances they have long lost the ability to meet their consumption requirements, as a result of land degradation and diminishing agricultural returns. The fracturing of the old balance has resulted in men migrating to seek employment in the foothills and plains to bridge the growing gap between subsistence production and consumption. Declining agricultural productivity and environmental degradation in parts of the Andes and Himalaya have also encouraged women to engage in short-term migration or even seek employment in urban areas (Bourque and Warren, 1980; C W D, 1988; Schuler, 1980).

The prevalence of "money order economies" is viewed by many development experts in a positive light because of the access to Iobs and cash incomes. However, the experience in most mountainous areas of the Global South this development has also been accompanied by an increase in the absolute poverty and the increasing marginalization of local communities.

In many instances, new ideologies of development have reinforced culturally-defined entitlement systems which determine which individuals have priority to scarce household resources, who have to carry the main labour responsibilities, and so forth. While all segments of the population are necessarily affected by socio-economic transformations and upheavals, the caste, gender and generational fault lines along which social and domestic relations are structured ensure that neither the benefits nor the costs are uniformly experienced. As a result, whether due to settlement dispersal, changes in local natural resource endowment, declining agricultural returns, or the out migration of men it is the poor, low castes, women, children and the elderly who are more vulnerable to the fragmentation of social support structures.

Air travel and international tourism has introduced yet another dimension to the opportunities and dilemmas posed by accessibility. As a result of the migrant-urban encounter, tourism, increased access to images of urban life through the popular press, radio and even television, once peripheral mountain cultures are now in close contact with more dominant and homogeneous urban cultures and modes of behaviour of the plains. In some areas in the Himalaya, the penetration of new values and modes of behaviour are accelerating a process of Sanskritisation amongst both Hindu and non-Hindu mountain communities. Lower castes and non-Hindu groups are beginning to adopt certain practices and aspects of Hindu ideology in order to advance their political, economic and/or social standing. In many parts of Garhwal and Kumaon marriage transactions are changing from the traditional observation of bride price to a more urban commoditized form of dowry, one consequence of which is increased forms of indebtedness (ranger, 1987; Mehta, 1994).

a. Impact of male migration:

Few studies have examined the in-depth demographic, social, economic and social consequences that result from men being away from villages for extended periods of time. Participation in the off-farm economy clearly plays an important part in providing households with much-needed incomes both in cash and kind to meet a growing array of market-based needs, including foodstuffs, medical treatment, education, clothing and travel expenses. There is, however, little documentation of me form payments take, the frequency with which they are made, who receives and controls the money, and the way household labour allocation strategies adapt to fill the vacuum left by the migrants.

Male migration has a profound impact on household subsistence and labour allocation strategies, typically adding more chores to women's over-burdened days. This reconfiguration of gender roles, however, does not necessarily imply a devolution of responsibilities.

Evidence from certain Tibeto-Burrnan communities in the more remote highland areas suggest that women's historically dominant roles in agriculture, coupled with a tradition of female participation in small-scale "informal-sector" income-earning activities has enabled women to assume a more active role in various spheres of domestic and agricultural decision making in the absence of their menfolk (Acharya and Bennett, 1983).

There is, however, ample evidence that indicates that women's de facto status as heads of households does not translate into effective managerial control in communities structured by patrilineal and patrilocal systems of inheritance and social organization. In such instances where men have *de jure* control over land, cash and other productive resources, and are socialized to interact with institutions and personnel of the "outside world" male migration actually reinforces women's dependence on men Jetley, 1987).

Another aspect of differential access to occupational mobility and off-farm sources of cash incomes is new forms of internal differentiation. In this same area, the introduction of cash crops is fuelling the emergence of new power elites: individuals who are less identified with their traditional ritual roles as landed peasantry but, instead, are expanding their roles as agents, seed and commodity traders. This enables them to serve as "link men" to institutions and personnel of the "outside world" (Mehta, 1991).

Increasing access to education is also a powerful source of differentiation. In Chamoli district in the Indian Himalaya there was a 52% increase in literacy between 1961 and 1971, sixty-six government intermediate colleges, an three post-graduate colleges (Jain, 1991). Educated youth typically seek work away from the villages and, even if they do remain, no longer wish to work the land. Thus, the burden of subsistence work is left to their mothers and sisters.

b. Gender-differentiated worlds:

Like their menfolk, mountain women's lives have also been affected by the policy and market-driven processes which have drawn their communities into wider state and market economies. For the younger generation of women in the more accessible areas this has provided certain benefits: a measure of schooling, medical centres to facilitate difficult pregnancies, the prospect of purchasing foods and other goods in local markets, and the occasional travel into towns.

At the same time, their work, access to resources and life options remain firmly embedded in a complex ideological and structural matrix shaped (at least in the Himalaya) by the patriarchal extended unilateral household, a system of patrilineal descent and inheritance, and patrilocal residence and kinship relationships. In addition, the gradual absorption of urban and dominant

religio-cultural values and dominant culture gender ideologies have also played a role in restricting women's life options compared to their menfolk.

It can be argued that the gender fragmentation of interests is an inevitable cost of processes of development which are improving the overall welfare of households. Lessons extrapolated from the plains experience, however, suggest that there is much to learn about the way that commercialized relations and values can have a negative impact on the status of women by rendering invisible much of their contribution to the rural economy (Agarwal, 1991). An example of how the expansion of the market economy, the strengthening traditional ideologies of gender exclusion, and men's withdrawal from agricultural work has serious repercussions for women and their households' survival strategies comes from a valley located in the outer mountains of Tehri Garhwal district in India. Agriculture in this area is becoming more commercially-oriented, with the result that households must now purchase a high proportion of agricultural inputs and food items in the local market. At the same time, however, access to the commercial domain remains highly gendered: even though some women must interact with it, they have inadequate access to the types of services and information they require (e.g. agricultural extension workers, seed merchants, pricing systems, and formal and informal credit institutions) to perform their agricultural work. This increasing dependence on market inputs, access to new and more favoured resources and information are gradually eroding and devaluing women's traditional roles and knowledge.

This situation not only affects women but also has repercussions for household food security. The women of these villages have primary responsibility for the bulk of most work involving recently introduced cash crops. Nevertheless, their exclusion from certain market-based activities and their dependence on men for access to key agricultural resources has the effect of obscuring their critical roles in producing the agricultural surplus upon which households - along with migrant remittances -- depend. In short, women are now increasingly viewed simply in terms of their roles as providers of labour as opposed to managers of the land, their work perceived as less valuable compared to what men are doing in the cash economy (Mehta, 1994; forthcoming).

c. Subsistence needs versus commercial interests:

New types of gendered and class tensions are also emerging in areas where subsistence needs are being pitted against commercial interests. The privatization of large tracts of once-common lands in what is known as the "fruit belt zone" on the Mussoorie-Chamba road in Tehri Garhwal district has led to the commoditization of local activities, use of migrant labour, altered relationships to the subsistence base, affected women's ability to perform traditional tasks. Women must now walk considerable longer distances along the road to get to the forests. In addition, the privatization of profit and

resultant erosion of traditional household labour exchanges means that much of this work is conducted in isolation. More importantly, the once freely available grasses have now been converted into commodities, the "rights" to which now commanding prices between Rs 500 - Rs 1,000 per plot of land. Thus, female foragers must now risk facing the accusations of male orchard owners for "stealing" resources that are central to their animal husbandry strategies (Mehta, 1991).

Another example comes from the villages of the Bhagirathi valley where diminishing forest resources and a declining agricultural base have acutely affected fodder supplies. Women in this area now routinely travel considerable distances by bus (often staying overnight) in order to exploit non-local natural resources. These circumstances are significant on several levels. First, they compel women to contravene local pahari (hill) norms by going into areas where mutually-recognized social sanctions no longer apply, where for brief periods of time they have no ties, and where they are likely to have to interact with male strangers unmediated by their own menfolk. Second, they require women to renegotiate work schedules with other household members during the time they are away; since this is often not possible, certain crucial activities have to be put on hold. Third, the monetization of a crucial subsistence activity is making women dependent on access to cash (provided by men), thereby eroding the erstwhile control they exercised over the conditions of their work.

Anecdotal evidence from this area suggests that the use of non-local resources is beginning to generate tensions between user groups as women from ecologically resource rich areas are begin to adopt a more proprietary attitude toward their forest resources. The villages of this area have a long history of collective action around forestry and water management issues, and are now facing a host of new challenges for social mobilization and environmental regeneration. It remains to be seen how this will be affected by a trend which emphasizes competition between user groups rather than stressing similar interests and concerns across agro-ecological regions.

In all these instances, the presence of non-local men, alien values and the availability of liquid cash are exacerbating a long-established pattern of the sexual exploitation of mountain women (Berreman, 1963; Gupta, 1985). The trafficking of mountain women to brothels in the big cities in India reflects general conditions of poverty, failing mountain economies, along with women's inferior status and lack of vocational and income-generating opportunities for their (Nigam, 1993). In many areas the presence of non-local male contractors, laborers and entrepreneurs are perceived as a source of insecurity amongst local women. Many women feel this male presence is detrimental to their subsistence tasks, fearing sexual harassment or theft of jewelry.

IV. CONCRETE OPPORTUNITIES FOR CONSTRUCTIVE CHANGE

Given the larger structural forces that are increasingly impinging on highland communities, one of the central challenges of economic and social development is how to diversify opportunities, and, address the needs of a wide spectrum of groups within communities, whilst at the same time minimizing the marginalizing aspects of change.

A number of initiatives seeking to address issues relating to environmental and community regeneration have been implemented with varying degrees of success in highland regions across the world. While many projects do not significantly differ from those that have been implemented in the plains over a longer period of time, they underscore the need to take local contexts, social-physical relationships, priorities and constraints into consideration. More importantly, they nevertheless indicate the tremendous potential a decentralized approach to development planning can play in the lives of mountain communities.

a. Local versus external initiatives:

A critical variable determining project success or failure is the degree to which it permits local participation. Not surprisingly the highest success rates have been noted in community-initiated projects, followed by local non-governmental organizations (NGOs), national and international NGOs. By the same token, large-scale and capital intensive development projects initiated by national governments and funded by bi-lateral and multi-lateral organizations often marginalize small-scale mountain farmers (Mountain Agenda, 1992). Other problems such projects face, stem from their distance from stakeholders, constraints imposed bureaucratic regulations and short funding cycles (Byers and Sainju, 1993).

Two instances from the Himalaya illustrate how national policy and funding priorities can create powerful conflicts of interest between catchment areas in the mountains and command areas in the plains. In India's Tehri Garhwal district the government is building a 260 metre high hydro-electric dam near an area struck by major earthquake in 1991 which killed more than 2000 people and caused vast devastation. When completed, it is expected to provide hydropower to the metropolis of Delhi and its surrounding industrial townships. However, the impounding of the Bhagirathi River for this purpose will submerge 7,000 sq. kilometres of land, including some of the most fertile agricultural lands in the area. A hundred thousand villagers are expected to be uprooted; already many have been relocated to the lowlands without receiving adequate cash compensations (INTACH, 1987; Paranjpye, 1988).

Similarly, the World Bank-funded Arun III project in the Arun valley along the Nepal-Tibetan border will displace thousands of villagers, and destroy the habitats of several endangered species. In addition to the cultural pauperization of the displaced highland communities, permanent migration

into the lowlands in both instances is likely to create a host of new social and ecological conflicts as individuals attempt to eke out livelihoods in environments dissimilar to those in which they have for generations eked out subsistence livelihoods.

The contradiction between foreign policy objectives and subsistence needs is similarly illustrated in the Virunga volcanoes of central Africa. Here, a Belgian-assisted cultivation project designed to boost exports and to provide employment to settler populations served to disinherit the local Twa people, replacing once-rich forests with pyrethrum monocultures, jeopardizing soil fertility and disrupting water supplies (Byers and Sainju, 1993).

b. Impact of new technologies and commercialization

Technical development inputs have an important contribution to make to sustainable development in highland areas. These can, however, also exacerbate problems if introduced without taking into account local traditions, indigenous-folk bodies of knowledge and the linkages between agriculture, animal husbandry forestry and other subsistence practices. Similarly interventions patterned on plains models of development that are unsuitable for fragile mountain systems can also unwittingly perpetuate highly unequal terms of trade that characterize highland communities' interactions with the more dominant lowland political economies.

The revolutionary changes occurring in agriculture as a result of rapidly improving access to markets bears testimony to this. Over the past few decades there has been widespread cultivation of the potato throughout the Indian and Nepal Himalaya, apple cultivation in Himachal Pradesh and the Kashmir Valley in India, the Northwest Frontier Province in Pakistan, and in many areas throughout Nepal, Tibet, Bhutan and China.

In many instances, these market-oriented developments have been accompanied by: i) a shift from low-input to high input production inputs (often without the necessary support structures); ii) increased use of externally-derived inputs (in contrast to locally-produced ones); iii) a high level of production for external consumption (at the expense of domestic consumption needs); iv) the erosion of traditional biodiversity in favour of monocultures or crop cultivars that are unsuited to mountain physical and subsistence conditions; iv) uneven access to the benefits of development and increasing potential for growing socio-economic inequalities; and v) encroachment on local decision-making power and local control of production processes.

The intensification of land use patterns coupled with increased fallowing of land (much of it deliberately neglected as households devote more attention to better quality lands), and heightened need for labour has placed great stress on household labour allocation strategies. The areas most affected are dry,

arid areas where conditions do not favour high intensive commercial cultivation. In areas where the presence of roads enable men to migrate, there is also a growing dependence on migrant labour, women are becoming overburdened, while lack of labour is leading to neglect of fields, terraces and irrigation channels.

The erosion of traditional genetic diversity is becoming commonplace in many areas. In villages throughout the Garhwal and Kumaon Himalaya this is a by-product of the introduction of high yielding and "improved" seeds into local cropping regimes over the past 2-3 decades. In one valley the use of improved wheat varieties has contributed to the loss of the four traditional varieties of wheat, each one uniquely adapted to a specific elevation and the water, soil fertility and slope aspects associated with it. This rich gene pool is all but lost and, along with it, a body of local knowledge: nowadays only the very elderly still remember the different names of seeds, while the vast majority of villages only differentiate broadly between the dukaan (store bought) and Char ka (home) varieties (Mehta, 1994).

The gradual loss of resilient traditional varieties also affects other subsistence activities. Although late maturers late and low yielding, the old species of millet and wheat cultivated throughout the Himalaya are highly adapted to the fragile conditions of highland cultivation. They are, in addition, nutritious food sources for both humans and animals (Uttar Pradesh Hill Zone Status Report, 1989). In many areas, however, changing dietary habits (particularly amongst the young) favouring wheat and rice along with the greater use of hybrid wheat varieties has led to the devaluation of millets. Often cultivated on marginal quality lands and in small quantities than in the past, this situation has also affected animal husbandry strategies. The hybrid seeds produce shorter and thicker stalks which withstand high winds and heavy rains; nevertheless they are less resistant to fluctuations in rainfall and temperature, and are not favoured by village women as animal feed. As a consequence, in many areas women now rely more heavily on forest leaves and grasses, a trend which ultimately has important implications for the well-being of local forest resources.

Another cost of new technologies is the emerging tension between indigenous-folk systems of knowledge and exogenous-scientific knowledge bases. Traditional subsistence methods are based on bodies of knowledge that have evolved through trial and error over the centuries, are highly adaptive to the constraints of specific highland miao-niches, and are sustainable without long-term damage to the land (Shiva, 1988). In addition, these methods are not dependent on alternative market-based resources. The erosion of local knowledge affect households' ability to adjust to emergencies and, in many instances, also leads to the devaluation of women who are the main repositories of this knowledge. There are villages in Garhwal where the combination of loss of crop cultivars and genetic stock and the introduction of

new "scientifically-based" systems of information has resulted in a decline in intergenerational transfers of knowledge: young girls and women (much less their male counterparts) simply do not have the breadth of knowledge exhibited by their elders.

Finally, the relationship between cash cropping, subsistence agriculture, nutritional status and food security requires considerably more attention. Specifically, this needs to emphasize the nature of the crops, the control of production and income, allocation of household labour, and the maintenance of subsistence production. First, the income effects of shifts to cash cropping are highly dependent on existing transportation and storage infrastructure, credit facilities and pricing policies for the produce. In many instances, households' short term gains can be superseded by high levels of indebtedness and/or declining market prices for the crops. Second, increased income does not necessarily translate into increased food consumption at the household level unless there is a commensurate shift in control over money and purchasing from men to a system which also includes women (DeWalt, 1993).

Research from rural south India also offers an important lesson for agricultural policy in the mountains. A study investigating nutrient intake, intra-household allocation and gender bias indicates that subsistence agricultural households recover faster from poor crop yields than market-oriented agricultural households in terms of protein intake (Babu, Thirumaran and Mohanam, 1993). In another study in lowland Papua New Guinea, cash cropping was found not to decrease nutritional status if kitchen gardens were also maintained (Shack, Grivetti and Dewey, 1990).

c. Constraints to the dissemination of technology:

There are myriad ways in which technological innovations in food processing and labour-reducing applications have the potential to improve the welfare of highland communities. Nevertheless, the absence of institutional structures and services along with the limited presence of extension officers continue to seriously hinder efforts at dissemination.

In addition, access to information, training, credit and income-generating opportunities are highly gendered, with women and the very poor (typically low castes) having least access to them. The failure to address issues of equity has, consequently, not only aggravated resource depletion but also contributed to the marginalization of certain sections of mountain communities (Mies, 1990; Pradhan and Rankin, 1990).

d. Local contexts, priorities and gender sensitivity

An understanding of local ecosystem processes, the organizational mechanisms through which communities interact with their physical environments, social

dynamics at both the household and community levels, and local priorities are crucial components in ensuring the success of development and conservation efforts. Participatory rural appraisal methodologies and the integration of women are two key ways to gain access to both male and female perspectives, as well as differentiating between the various gender and generationally-differentiated responsibilities, aspects of control (over consumption, distribution, etc.) and labour that exist within households and the wider community.

Failure to identify locally-specific gendered patterns of labour mobilization and decision making, along with constraints shaping women's access to resources and benefits can result in the failure of even the best-designed projects. An example of gender blind programming comes from Mali where a Forest Department initiative to address the problem of erosion by planting trees only sought input from the permit holders, who happened to be men. In neglecting to include the actual farmers (all of whom were women) in the discussions, the project almost ended up planting trees on lands that were already being cultivated by the women and which, due to crude terracing, suffered only minimal erosion (Hoskin, 1989 cited in Byers and Sainju, 1993).

Another example from Zuni, New Mexico illustrates how ignorance of traditional land laws and social dynamics can affect the outcome of projects. Around the turn of the century reservoirs were constructed to impound water for irrigation purposes; based on national templates of land use, each male head of household was "assigned" about five of land to farm. However, because the Zuni's traditional land laws were governed by matrilineal ownership, there was much social disruption and the irrigation project went unused (Mr. James Enote, personal communication, January 6, 1995).

Failure to consider intra-household dynamics with regard to the control over cash and non-cash resources, decision making and access to the market can actually increase women's work burdens without providing them with substantial benefits… This was the case in a village-based natural fibre (lokta) paper production initiative designed to generate income for women in eastern Nepal; while women performed most of the work, they actually had very little voice in decision making, and men's incomes contributed minimally to household needs (Beer, 1990).

There are, however, compelling illustrations of how women are attempting to fight the structural inequities and poverty in which their lives are embedded. One example comes from the highlands near San Cristobal de las Casas in Chiapas, Mexico. Despite a strong collective tradition amongst the Indian communities, women were permitted no part of in the structure or decision making of local organizations, while activities which directly concerned them (such as the rearing of small animals) were not given priority by the male leadership. In 1981 a group of women formed a collective to address some of

the major problems they—as women—faced: lack of access to land and no opportunities for work or education. Today this collective, partly funded by Oxfam UK, engages in soil conservation, water-management, chicken-rearing, and kitchen gardening (Dankleman and Davidson, 1991).

There are also encouraging examples from initiatives which, by refocussing their work to include women, have often experienced considerable success. An illustration of this comes from an agricultural extension project in eastern Nepal which initially worked exclusively with male farmers. It made little headway until the emphasis was shifted to working with women who were the actual vegetable growers when, in a single year, the number of gardens increased from 75 to 210 (PAC, 1987, cited in Byers and Sainju, 1993).

Multi-sectoral approaches have also proved to be effective mechanisms for addressing community issues. Save the Children in Nepal combined community forestry projects with literacy classes for women emphasizing environmental issues and concerns. Since 1990 over 150 users' groups have been formed by committed women, started participating in community projects, and are now being granted legal control over community forests by the government (Acharya, H., 1993).

Another successful example comes from the mountainous region of Lorestan in the eastern part of Iran. A project initiated in 1974 sought to assist recently settled women to reclaim the important roles they had occupied in their nomadic days by selecting extension workers from the local population to work in four key units, agriculture, education, health, and rural industries and domestic economies. With the exception of the agricultural unit, women's participation has proved a success, participating in innovative literacy techniques based on the local culture, and improving their living standards through the production and marketing of handicrafts (Dankleman and Davidson, 1991).

Fundamental to the success of both projects has been the delegation of control over resources and decision making to on-site personnel and, through this, the creation of a mechanism to enable dialogue between project officers, field workers and local people. It also requires a level of sensitivity amongst project officers, a willingness to convey their credibility and commitment, to listen and to learn from local communities.

e. Tenure and use rights to natural resources:

Issues of tenure insecurity along with a vague understanding of how usufruct rights to natural resources operate at the local level can pose serious problems for development/conservation initiatives.

The Makula-Barun National Park in eastern Nepal and the Annapurna Conservation Area Project (ACAP) in central Nepal offer examples of how local communities can play a dynamic role in preserving forest resources based on flexible, multiple land-use approaches. Today ACAP has expanded beyond agricultural and forestry-related work to include fodder plantations, education and tourism programmer, health clinics, drinking water systems, and carpet and basket weaving cooperatives. Surrounding forests have been zoned for multiple purposes for community use and/or restoration based on the systems of collective management which villagers used to practice before forests were nationalized in the 1950s (Denniston, 1993).

However, natural resource management issues are by no means easy to identify. The issue of land and tree tenure can be particularly complex since it frequently combines highly gender-differentiated mixes of control and responsibility. Thus, it is common for women to be responsible for kitchen gardening, possibly even exercising control over the sale of the produce, as well as having usufruct rights to communal forest resources. Nevertheless, while they often contribute most of the labour for working agricultural fields, they very rarely have formal control of land. Similarly, while women often are responsible for harvesting the non-timber products from trim, the actual planting and felling of trees, along with the selling of timber, is performed by men (Bruce, 1989).

The gender-differentiated experience of tenure insecurity is further aggravated by the legal limitations women face to their access to and control of resources in patrilineal communities. Thus, in the circumstances that prevail in much of the Himalaya, women have neither title to land nor ownership of animals. Lack of Sure control over productive resources means that women cannot raise collateral for loans to buy seeds and fertilizers, or even make emergency sales in times of financial stress (FAO, 1991). As already noted, the fact that land-ownership and access to credit are major stumbling blocks for women is particularly troubling given the part women play in agricultural production, the change in agricultural tasks as well as the responsibilities which fall to them.

Positive experiences which couple women's participation in farming with efforts to promote sustainable agricultural techniques do, however, exist. One such case comes from the highlands of southern Brazil where a SIDA-funded, women-headed, farm management and training centre has been initiated. In addition to showing how small Kerns can be viable, the project is also attempting to slow down migration to the cities by providing local employment for unskilled labourers (Dankelman and Davidson, 1991).

Another encouraging example of how local and national level policies can interface with a sensitivity of the specific advantages of mountain environments and judicial use of natural resources comes from the northern parts of the Hengduan Mountains. Near the towns of Ganze in Sichuan and

Diqing in Yunnan indigenous Tibetan communities collect the matsutak mushroom from locally-managed forests. Considered a delicacy in Japan for which there is a ready export market, the mushrooms fetch local communities a high price (Bandyopadhyay, 1992).

f. Health

Despite its obvious linkages to environmental degradation and poverty, health remains a much neglected issue within the broader field of mountain development concerns. The decline of forest, agricultural and water resources, intensification of work burdens, and the cold stress associated with living in the high mountains, and limited access to decent health care, are only some of the pressures that highland communities have to face. Cultural ideologies of entitlement that dictate that females have less access to household resources also suggest that in certain social contexts women and girls will be more affected by generally deteriorating conditions.

In a number of areas reduced access to fuelwood is forcing communities to make adjustments in their diets, shifting from nutritious whole grains and legumes to less nutritious foods that require less cooking time. In areas of the mountains of Rwanda two-thirds of the families prepare cooked meals only once a day, while one-third families cook even less frequently (Dankelman and Davidson, 1988, cited in Byers and Sainju, 1993)

One successful multisectoral approach to working with health issues is the Baudha-Bahunipati Family Welfare project. Under the aegis of a US-based nonprofit group, the project initially focused on redressing problems associated with the traditional system of slash-and-burn agriculture, later integrating family planning and basic health care for people and livestock into its agenda. The project, which is planned and implemented by villagers, is now being replicated in 38 other villages, reaching 153,000 people, and the eventual goal is to hand over all responsibilities to local NGOs (Denniston, 1993).

Most mountain communities lack access to adequate water supplies and proper sanitation facilities. Women, as the primary water carriers, managers and end users are in constant contact with polluted water and are, as a consequence, the group most vulnerable to water-related diseases. Despite their vital roles as water and sanitation educators, women are typically excluded from the planning and implementation of water and sanitation projects. This often results in the design of rural water systems without the benefit of information regarding women's cultural preferences: in one case male engineers placed pumps in the centre of the village assuming this would be convenient for the villagers, without considering women's reluctance to wash in the open; in other instances pumps have been designed with handles that were too heavy or placed too high for women or children to use (INSTRAW, 1991).

One promising experience comes from the aforementioned Lorestan project in Iran where the health and hygiene unit was given top priority. Local women extension workers have played a central role developing family planning, simple healing and disease prevention schemes (Dankleman and Davidson, 1991).

A Bolivian project which has integrated water supply, sanitation and public health has been particularly successful. Indigenous women have been trained to give immunizations, provide information on child nutrition, lecture on the proper use of water and sanitation facilities, and even repair and maintain the facilities (INSTRAW, 1991). Other successful instances from the Andean region include the incorporation of community health workers who share and practice the same beliefs, values and traditions as the communities, and who are able to straddle both traditional and modern systems of medicine (Bastien, 1990)

g. The activist tradition

Centuries of colonial rule and the experience of marginalization have helped shaped a history of social protest within mountain communities. In the Garhwal Himalaya, the best-known of these is the Chipko Improvement which, in the mid 1970s, played a pivotal role in ending commercial logging for a period of 15 years. This activist tradition has continued: village women have played a leading part in campaigns against illegal distillation of liquor, communities have protested against the limestone quarries in steep watersheds that have contributed to forest degradation, loss of water supplies, and increasing landslides; communities have protested the construction of the Tehri Dam. This collective history represents a valuable source of energy for mobilizing communities for ecological and social regeneration.

V. RECOMMENDATIONS

The effect of several decades of formal development planning in the mountains is that local communities have had little opportunity to contribute their voices. This exclusion of local perspectives and priorities lies at the heart of ill-conceived policies and a growing cynicism amongst mountain peoples about governments' commitment to meeting their needs.

As the century draws to a close there is an urgent need for international agencies, national governments, as wed as national, regional and local-level NGOs to be signatories to a people-oriented mountain agenda that recognizes the need to advance beyond definitions of prosperity based on economic returns to include ecological and social equity.

The imperatives to tackle the legacy of political, economic and social marginalization that makes mountain communities vulnerable to contemporary rapid socio-economic growth and the effects of poverty are growing. The

multiplicity of ethnic and cultural diversity presents a serious challenge to efforts to articulate and operationally strategies that are viable across a wide region. However, development initiatives must pay serious attention to this issue not only because indigenous approaches have a valuable contribution to make in designing and implementing sustainable development, but also because failure to address diversity can jeopardize such efforts. The potential for political, economic and social marginality to feed into wider geo-political tensions and to undercut development efforts is already manifested in a number of Himalayan regions (e.g. Kashmir, Garhwal, Northeastern India).

There is a vital need to analyze in greater depth the complex relationship between prosperity, poverty and environmental degradation. Mountain cultures represent unique social forms of adaptation to fragile environments; nevertheless their impoverishment due to lack of income and productive resources, unemployment as well as underemployment, and various expressions of exclusion from larger social, economic and political institutions also play an important part in accelerating the degradation of the environments on which subsistence livelihoods depend, and reinforcing the historically lopsided relationship between the highlands and lowlands.

Poverty and inequality are inseparably linked to lack of control of land, skills, capital and information, which perpetuate people's limited access to institutions, personnel and services of the wider political economy. Efforts to eradicate poverty and marginality must identify how processes of "modernization" are contributing to a weakening of traditional linkages between cultural and physical systems, the erosion of social support systems, and the impact on those groups who fall outside the safety nets provided by traditional and modern social institutions. Initiatives must be committed to the empowering of mountain peoples: recognizing and promoting their talents and experience; assisting them to retain their cultural identity whilst participating in and making a positive contribution in all aspects of political, economic and social life, and forging links between local, regional, national and international efforts to ensure communities' access to resources, opportunities and public services.

Concern for sustainable development and conservation action is strong amongst mountain communities. There is, in addition, a vibrant activist tradition on which such initiatives can build. However, this can only be authentically developed by i) a commitment to decentralizing the planning process; ii) a thorough understanding of local contexts; iii) strengthening community organizations, and iv) integrating women at all levels of project formulation. Finally, notwithstanding the romanticization of indigenous knowledge in recent years, this is still inadequately documented. The rapidity of change that most mountain areas are experiencing suggests there is a real danger of this being lost before it can be documented.

There is already considerably recognition on the part of national governments and national-level NGOs of the need to devolve the decision making process in order to make the development process more authentically participatory and empowering for local communities. The emergence of mountain-based NGOs, and the concern of plains-based NGOs to support the special needs of mountain peoples is a heartening sign of a process ensuring a greater local voice in organizational issues. Experience indicates that locally-based NGOs have a powerful role to play in initiating dialogue with local communities, providing a mechanism through which to interface with institutions and personnel of the modem state, training local personnel, and being more flexible than larger agencies in their ability to undertake innovative programmer.

Effective and sustainable development planning has to be based on an understanding of the linkages between sustainable use of resources, gender roles within the community, the key constraints as well as local comparative advantages of specific mountain environments. Given the enormous diversity of mountain ecosystems, cultures, adaptive strategies, and modes of linkages to the wider political economy, this will require a substantial commitment in time, money and personnel. It is, however, vital in order to develop a comprehensive understanding of ecological systems, sources of and responses to stress, existing ecological management practices, forms of community organization, formal and informal modes of organization, potential and actual leaders.

a. Protocols for action

An important first step is to create a set of policy guidelines to be integrated into economic and social policy and planning at the local and national levels, and which will be designed to identify needs, priorities and constraints in specific highland communities. These protocols will:

* develop a set of legal and administrative protocols to shape and monitor policy concerning highland areas;

* review and analyze national economic policies and priorities with respect to their impact on. poverty and inequality in mountain areas; ensure that development policies are not biased against mountain areas or favour patterns of agricultural (and other) development that are not suited to the highlands;

* evaluate the socio-economic and environmental impacts of local development initiatives;

* monitor projects in meeting their goals by evaluating the qualitative and quantitative changes in poverty levels based on specifically-designated indicators of vulnerability: e.g. income, wealth, health: morbidity/mortality rates, hunger, malnutrition, illiteracy, unemployment;

* identify and evaluate the viability of "traditional" landuse, risk-adjustment strategies and other cultural practices;

* design and implement environmental protection and resource management measures that take into account the needs of the poorest and most vulnerable sections of communities (in accordance with Agenda 21);

* articulate financing and cost-evaluation protocols that identify the specific breakdown of monies available for human resource development;

* strengthen mechanisms to ensure accountability and responsibility based on an on-going dialogues amongst governments, funders, practioners and communities.

* create mechanisms to identify and evaluate practices and subsidies which are both working and impeding sustainable development in the highlands (including non-quantifiable values);

* integrate an active gender perspective into the formulation and implementation of all economic and social development strategies; establishing policies, objectives and measurable targets to ensure women's full access to legal rights, education, health care, productive assets, labour rights and wage equity, financial resources (credit) and access to other social services.

* identify peoples and groups most vulnerable to poverty and effects of dispossession, recognizing that their consequences are disproportionately experienced by women, children and the elderly, and emphasizing their special needs;

* develop stronger international, national and regional cooperation to assist countries and regions in their efforts to address the needs of mountain communities;

* establish mechanisms for coordinating between local, regional, national sectors of administration; creating and sustaining linkages between different groups of actors at each level; encouraging and helping to sustain popular action at different levels.

b. Decentralization of the planning process:

Sustainable development initiatives must respect communities' dignity and culture, reflect local priorities and perceptions, make full use of positive local knowledge, skills, resourcefulness and insights, and take into account the needs of the most vulnerable sections of the community. Empowerment at the local level will include:

* creating mechanisms for maximizing community participation in the design, implementation and monitoring of programmer;

* identifying local organizations and working with their representatives to work more effectively with government and NGO groups in economic and social policy-making processes and in accessing the opportunities and services their communities need;

* educating people about their rights, the wider political system, and the availability of programmer and services;

* promoting community access to basic education, potable water, sanitation, primary health care and reproductive health services for women; identifying local healers and practices; encouraging the convergence of traditional and modem health care systems; eliminating gender disparities of access;

* identifying variation amongst and divisions within communities, their specific dynamics of and responses to change; identifying which groups are particularly vulnerable;

* increasing access of impoverished and marginalized sections of communities, and especially women, to productive assets such as audit;

* designing and maintaining fore for greater intra-community dialogues, specifically to ensure a voice to the most invisible and, hence, silent, members of the community;

* identifying both the positive and negative aspects of increased market participation on local consumption patterns, access to and dependence on resources, employment opportunities, supplementing traditional livelihoods, traditional subsistence systems and survival strategies;

* establishing channels for greater inter-community/cultural interactions (local, regional, international) through which to share organizational and development methodologies;

c. Understanding the local context

Mountain populations require greater opportunities for more mobility, better access to markets to sell their produce and purchase inputs at the lowest possible prices, access to better medical facilities than those locally available, and appropriate education. An important aspect of embracing the local context is addressing the tension between indigenous-folk and exogenous-scientific knowledge bases by in-depth case-by-case studies of the specific conditions and constraints within which local environmental knowledge systems are generated. Incorporating local values and beliefs, as well as insights from

religious leaders and elders can also contribute to bridging the gap between different and seemingly exclusive ways of knowing.

The special needs and constraints characteristic of highland social and ecological systems and opportunities for diversifying productivity bases should be enhanced by:

* improving infrastructure such as transportation and, communication services, access to power and energy services;

* emphasizing that mountain farming is based on small-scale and diverse production systems;

* promoting rural non-farm production and service activities, including agro-processing, irrigation, access to agricultural inputs and equipment;

* improving financial and technical assistance programmes for community development and self-help initiatives;

* promoting the formation of local financial networks (both formal and informal), and strengthening cooperation between governments, community organizations and local banking institutions;

* strengthening community-based cooperatives to ensure access to markets, fair prices, services, credit, information to increase productivity; promoting cooperation of communities in implementation of rural land improvement and economic diversification schemes;

d. Strengthening community organizations:

There is tremendous potential for communal systems of organization to be incorporated into modem participatory institutions. However, local participation in grassroots conservation and development programmed requires a commitment to sufficient resources to ensure identification of intended stakeholders. More critically, local people need to be given the space 'T; which to articulate their own needs, priorities and define their solutions. This is an area where non-local NGOs can provide an important service in their capacity as facilitators in:

* identifying both formal organizations and informal institutions (e.g. labour exchange systems) that can be incorporated into development initiatives;

* identifying women leaders, young educated women and men, religious leaders, and other individuals through whom local resources can be mobilized and priorities articulated, and who can serve mentoring functions.

* strengthening people's title to land (where relevant this must extend to women); helping to develop new ecologically viable agricultural lands; making land transfers more efficient and fair; improving the conditions and wages of local and migrant agricultural labour; assuring groups access to resources;

* increasing access to irrigation extension services, appropriate technology and information;

* protecting the rights to land and other resources of pastoralists, nomadic, other indigenous people; strengthening land management strategies by building on positive communal practices (e.g. indigenous knowledge systems, seasonal work cycles, ritual calendars; properties of the soil, etc.);

* encouraging agricultural research to emphasize the benefits of high altitude Cops which have evolved to meet specific conditions of low rainfall, fertilizer availability, cold temperatures, etc.; promoting and disseminating education, research and development on highland farming systems and small-holder cultivation in ecologically fragile regions; incorporating local and traditional practices and knowledge of sustainable agriculture and resource use;

* improving linkages between local communities and agricultural training and extension services to promote more effective use of existing technologies and indigenous knowledge systems, disseminating technologies more widely to reach both women and men.

e. Inclusion of women:

Despite the rhetoric of integrating greater gender sensitivity into the planning and implementation of programmed over the last two decades, women's powerment remains inadequately conceptualized. This is not just a problem within so-called "target" communities; women's poor representation in mainstream research priorities and development policies is also witnessed by the limited availability of trained and professional women.

Women have a crucial role to play in the process of social transformation: through inclusion at all levels of project design, implementation and analysis, and in think-tanks and environmental and social training activities to educate the public and policy makers on the linkages between sustainable development, environment and women.

It is also crucial to sharpen analyses regarding how women's multiple roles in local economies are affected by processes of socio-economic and ecological change. There is still inadequate appreciation of women's broad-based knowledge of their local environments and how this contributes to issues of food security and domestic welfare. At the same time discussions of women's putative roles in resource management run the risk of over generalizing,

overlooking the ways that changing ecological and social landscapes, along with enhanced participation in the market economy, are affecting systems of knowledge and impinging on their activities and responsibilities.

A more committed gender perspective must include channels for:

* contextualizing the social and political constraints women face in being recognized as productive members of their communities;

* encouraging in-house training workshops to heighten staff and management awareness of gender-related issues; for facilitating the exchange of information, strengthening traditional skills and knowledge, and helping to build women's confidence by lessening their sense of isolation;

* identifying on a case-by-case basis the constraints women agriculturalists and subsistence provisioners face in terms of access to information and resources, problems of time allocation, limited access to education, training;

* elaborating how women's roles in production and natural resource management are shaped and affected by intra-household gender and generational hierarchies and cultural systems of entitlement, and how these are affected by market dynamics;

* enhancing production and marketing activities by providing access to credit, appropriate technologies, environmental training, information, employment and equitous wages; education that draws on their repertoire of skills to help reduce risks and enhance security.

f. Human resource development

A broader perspective on human resource development is vital to understanding how integration into wider market systems and relations, accelerating economic transformations, and the onslaught of a more homogeneous modem urban culture are affecting cultural uniqueness, contributing to social disintegration, and jeopardizing development initiatives. This includes:

* identifying the demographic, social and economic implications of migration (which is largely though not exclusively a male phenomenon) on gender roles and household labour allocation strategies (e.g. who goes to school, off-farm employment, who remains to work the land); availability of disposable income on cash or in kind); who has access to it; how is it used;

* documenting the socio-economic and ecological impact of tourism (both national and international) which directs resources toward commercial and non-local uses, and the implications this has for issues of unsustainability; the

linkages between disruption of social institutions and ecological degradation; impact of heightened accessibility on conditions of natural resource utilization and management;

* examining the interface of modem values (including increasingly consumeristic life styles and conspicuous consumption) with cultural entitlement systems;

* examining how social and ecological disruptions affect communities' potential to mobilize; implications for community tensions (often expressed in gendered terms since it is typically women who perform the subsistence work and men who are more closely linked to market domains).

g. promoting greater awareness of mountain cultures:

Lastly, there is urgent need to monitor, assess and share information nationally, regionally and internationally to promote greater understanding and awareness of the situation of mountain peoples. This will require:

* mobilizing public awareness via educational institutions and the media;

* mobilizing the resources of universities and research centres to disseminate better awareness of mountain communities; strengthening the capacity of social science research and integrating its results into policy decision-making process;

* facilitating and promoting exchange of knowledge and experience between countries and regions.

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Notes to readers

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