Peopling mountain environments: Changing Andean livelihoods in north-west Argentina

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Abstract

Structural adjustment and neoliberal policy implementation in Latin America have had dramatic consequences for livelihoods and patterns of natural resource use in mountain regions. Restructuring of the agricultural economy has increased socio-economic hardship and reduced industrial labour requirements, altering traditional patterns of seasonal migration from these areas. This paper examines the implications of recent economic and political transformation for Andean livelihoods in the mountains of northwest Argentina. Case study material illustrates the local impacts of such changes on socio-economic dynamics, patterns of urban–rural interaction, and natural resource use. The research highlights the influence of agro-industrial restructuring, protected areas creation, and the distribution of social funds in the region. It reveals that local development is constrained and controlled not only by distant policies but also by contemporary local networks of political clientalism. The influence of both distant and proximate factors governing livelihoods and environmental impacts reinforces the value of geographical study in mountain areas, given its acute spatial and scalar awareness. The paper reaffirms the conception of mountain livelihoods as diverse and dynamic, shaped by economic, political, social and cultural factors as well as physical reality, and critiques the economic rationality of resource use assumed by policymakers and economic models.

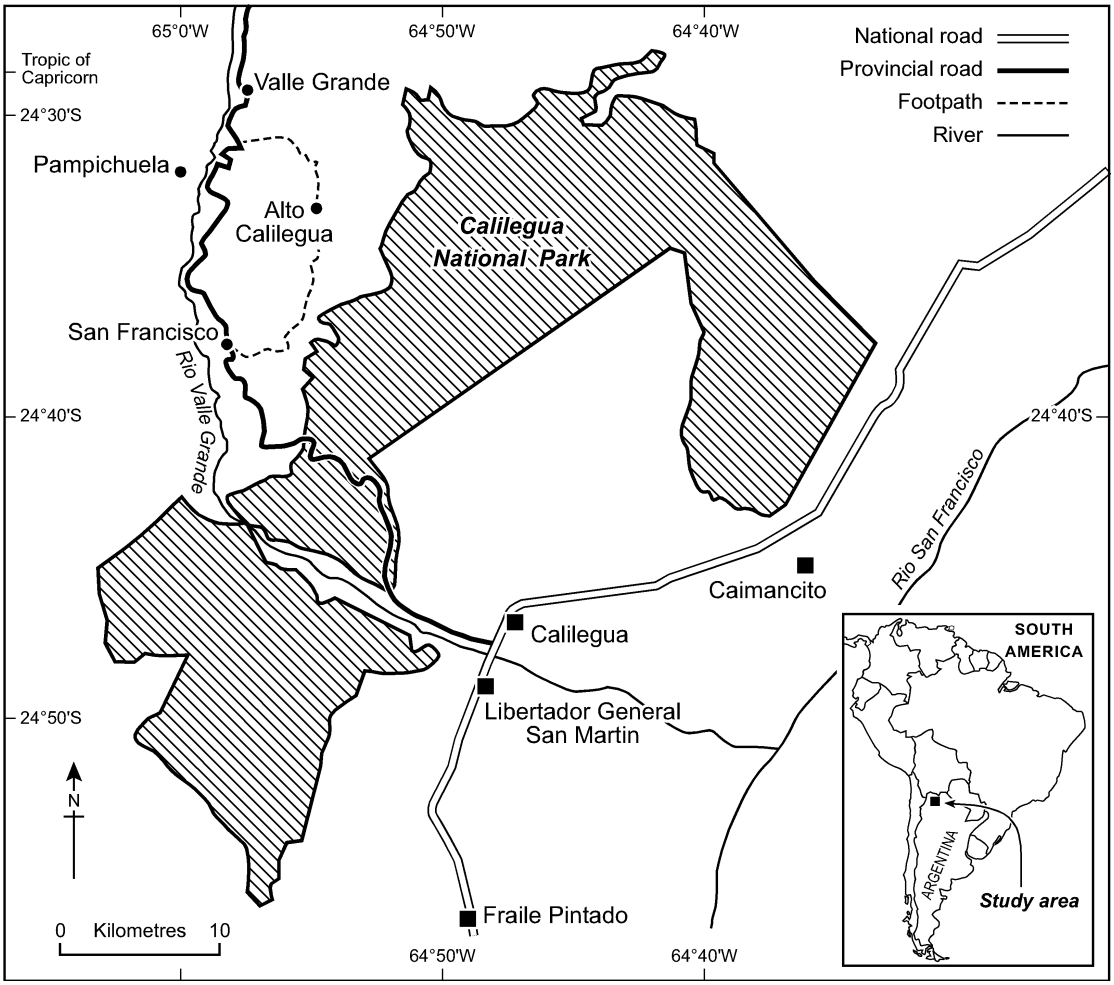
Keywords

Argentina, mountain livelihoods, natural resources, protected areas, economic restructuring, political clientalism

Sweeping economic reforms imposed in the late 1980s and early 1990s reflected the emergence of a new economic model for development based on the neoliberal doctrines of the market and free trade (Hojman 1994; Gywnne and Kay 1999). However, while economic restructuring may have initially increased labour productivity, it has also resulted in increased rates of unemployment and the worsening of the already unbalanced income distribution (Acuña 1995). The proportion of total income received by the poorest decile fell dramatically from 3.2% in 1980 to 1.3% in 1999, while the richest 10% increased their share from 27% to 37% (INDEC 2000). The prolonged economic recession which began in 1998 has been accompanied by crippling requirements for payments on the nation's external debt of $160 billion. This lengthy period of stagnation led to the resignation of President De La Rúa in late 2001 and currency devaluation in January 2002.

The changes within the Argentine economy were not spatially even in their effects. The 'interior' region outside Greater Buenos Aires and the fertile Pampas experienced a more pronounced economic and political marginalization even before the onset of the 2001–2 crisis (Sawers 1996; Keeling 1997). The regions of the interior continue to suffer from the ill effects of reform through industrial and state employment cuts and declines in welfare spending and wages. At the same time, marginal areas are often in a weak position to take advantage of any economic openings available from the new economic model due to poor access to markets, capital, infrastructure and skills (Kay 1999; David *et al.* 2000).

Figure 1: Study area in NW Argentina

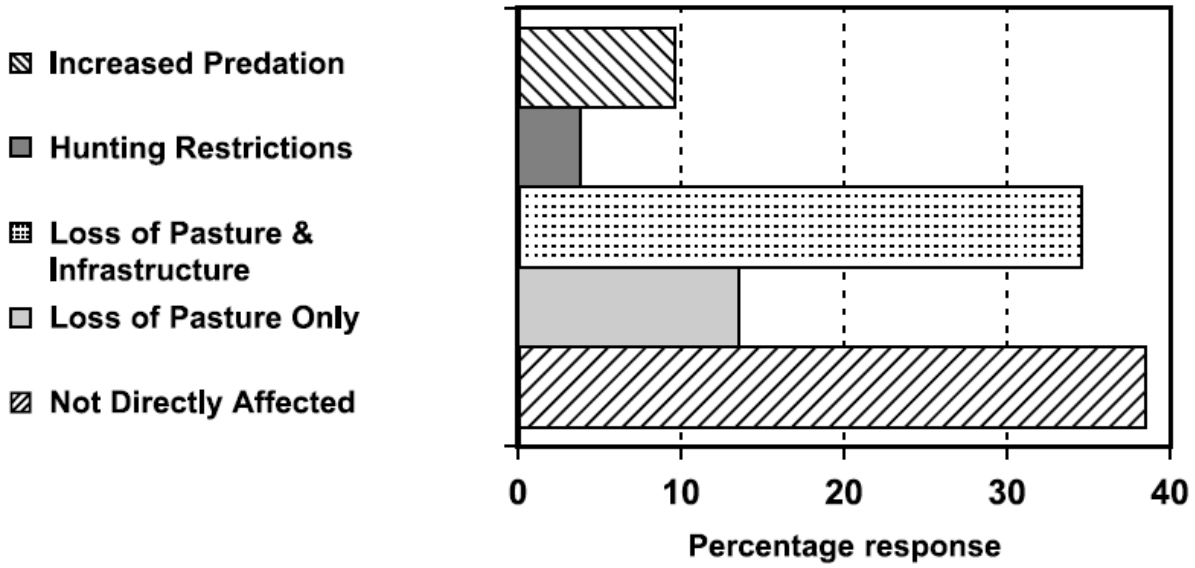


Peopling mountain environments: the Case of Valle Grande

This paper investigates the effects of such changes in a rural department in the mountainous northwestern province of Jujuy (Figure 1). The department of Valle Grande covers a geographically isolated valley between the peaks of the oriental Andean chain to the west and the sub-sierra of Calilegua to the east. Its population of almost 2000 is entirely classed as rural, although in common with much of the Andean north-west, population is increasingly concentrated in the main villages (Reboratti 1996).

Set in the first ranges of the Andes, the villages of Valle Grande department can be considered relatively isolated, though improvements to both the winding provincial dirt road and transportation have reasserted its connections with the lowlands. The study area's socio-economic base has historically been dominated by extensive transhumance and small-scale horticulture. Seasonal migration to wage labour in agricultural harvesting, notably the sugar harvest or *zafra*, has also played an important role in rural livelihoods (Ottonello and Garay 1995; Brown and Levy Hines 1995; Reboratti 1996). The research used a semi-structured household survey in combination with participatory and other ethnographic methods in order to analyse socioeconomic dynamics within the context of the wider political economy. Two villages, representing a traditional high-altitude settlement and more recently a colonized mid-altitude settlement, were investigated in greater detail. The 60 households sampled in these villages provided the bulk of the data presented here, but can be considered representative of the processes across the department (BioAndes 2002).

Figure 2: Impacts of Calilegua National Park on highland communities



National park creation

One of the nodes of interest for the study is Calilegua National Park between Valle Grande and the lowlands to the east. While the focus of this paper is not on the interactions between local communities and protected areas (Tanner 2000; Few 2001; Slater 2002), the creation of this national park in 1979 has been a crucial factor in determining natural resource use. Calilegua National Park is situated in a mountainous area between the intensive agriculture and urban centres of the lowlands and the highland valley system in the Valle Grande department (Figure 1). The donation of the land for this park by the Ledesma sugar company served to protect the water resources required for irrigation in the lowlands and continued sugar cane production. The forested hillsides control the

local hydrology, storing the summer rainfall and releasing it slowly into the watercourses during the drier winter months.

In common with many other protected areas in the developing world, the creation of this park resulted in the expulsion of tenant pastoralists, who traditionally migrated to the eastern forested slopes for winter pastures (Amend and Amend 1995; Ghimire and Pimbert 1997; Aagesen 2000). While there may have been motives of social containment implicit in the land donation, in reality the sugar company found a simple and pragmatic way of protecting its irrigation waters at reduced cost. The burden of aquifer protection fell on the national park's administration, while the company appeared altruistic in donating the 76 306 ha area to the nation.

The loss of these lands for highland communities created a barrier to traditional livelihoods and created the necessity to search for new winter pastures. The lands available were distant, more expensive and contained poorer pasture, presenting a considerable hurdle to the viability of transhumance.

Of the 60 households interviewed in the two villages that were studied intensively – Alto Calilegua and San Francisco, immediately neighbouring the park boundary – almost half of the inhabitants remaining suffered a loss of pasture as a direct result of park creation (Figure 2). As well as the direct loss of livestock and decreased viability of pastoral activity, there were also significant infrastructural losses owing to the expulsion of people from the park. The remains of buildings are still visible near to the hiking trails in the park, and equally important to many of the respondents were the loss of 'investments' in perennial crops such as fruit trees:

> "We didn't just lose our houses there, many animals were lost too . . . and we had crops and trees – old ones with many fruit: avocado, apple, grapefruit, orange, mandarin, peach . . . even mango."
> Ex-tenant highland farmer

In addition, respondents highlighted the prohibition of hunting inside the park and the consequent increases in predation of cattle by wildlife as further consequences of protected area creation. While park creation dates back over two decades, it still plays a significant role in influencing contemporary natural resource use in the highland villages in Valle Grande department.

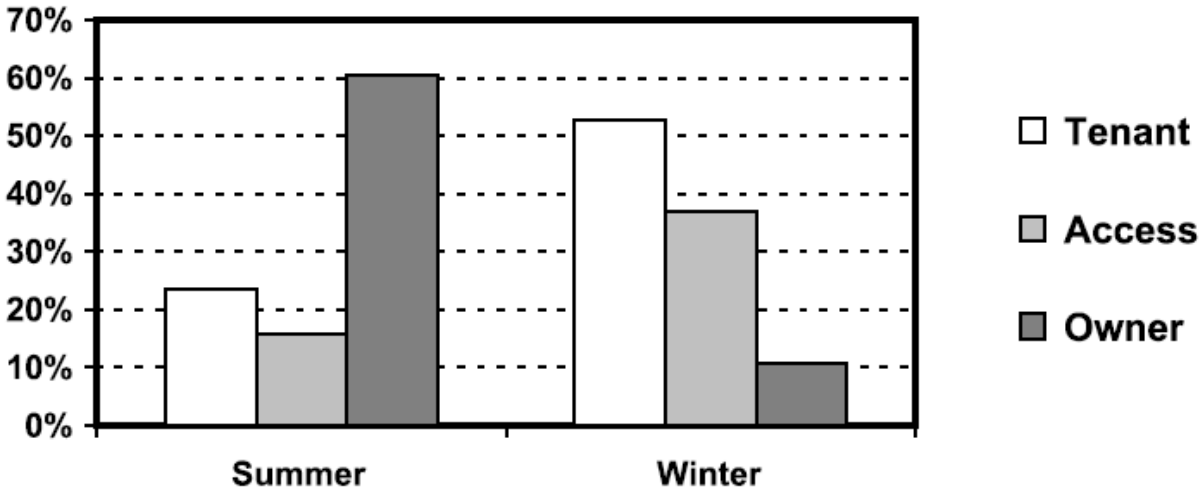
Highland transhumance

Land tenure is of paramount importance, as the viability of pastoral activity is to a large extent determined by ownership of, or rent-free access to, grazing areas for at least one of the two seasons (Figure 3). Differences between summer and winter tenures in the area to some extent reflect the creation of the protected area, but they also reflect the location of many smallholdings in the areas of high-altitude grasslands used for summer pasture. The estates of the forested lower slopes of the valley tend to be larger and belong to absentee landowners. The study revealed that ownership and *de facto* use are considered as important as *de jure* ownership, with family ties and historical precedents playing crucial roles (Schelhas and Shaw 1995; Preston 1998).

While in the past cattle reared in the highlands supplied the markets of the lowlands, the increased availability of better quality cross-bred cattle and decline in market prices for traditional cattle has

further reduced the economic viability of cattle rearing. Consequently, cattle are now mainly killed and butchered in village slaughter-houses, with all but the largest-scale producers now selling their produce within the local market. Cultivation is not ubiquitous and is almost exclusively for subsistence: 27% of households surveyed did not grow crops at all, even within the environs of their homes. This is noteworthy given the ongoing perception of policymakers in provincial and national capitals that livelihoods in the area are predominantly agrarian. The decline in cultivation has been influenced by cultural factors, labour requirements and the greater availability of imported goods in village shops.

Figure 3: Pastoral tenure in Valle Grande



Industrial restructuring and migration

One of the most influential changes in the regional economy in the last two decades has been the restructuring of agro-industrial activity. The competitive pressures of neoliberal policies have sparked this restructuring, and previously guaranteed domestic markets have increasingly been opened up to foreign producers. Lower production costs and market diversification were spurred on by the withdrawal of state subsidies and import tariffs, particularly within the MERCOSUR free trade area comprising Argentina, Brazil, Paraguay and Uruguay, with Bolivia and Chile as associates (Roett 1999).

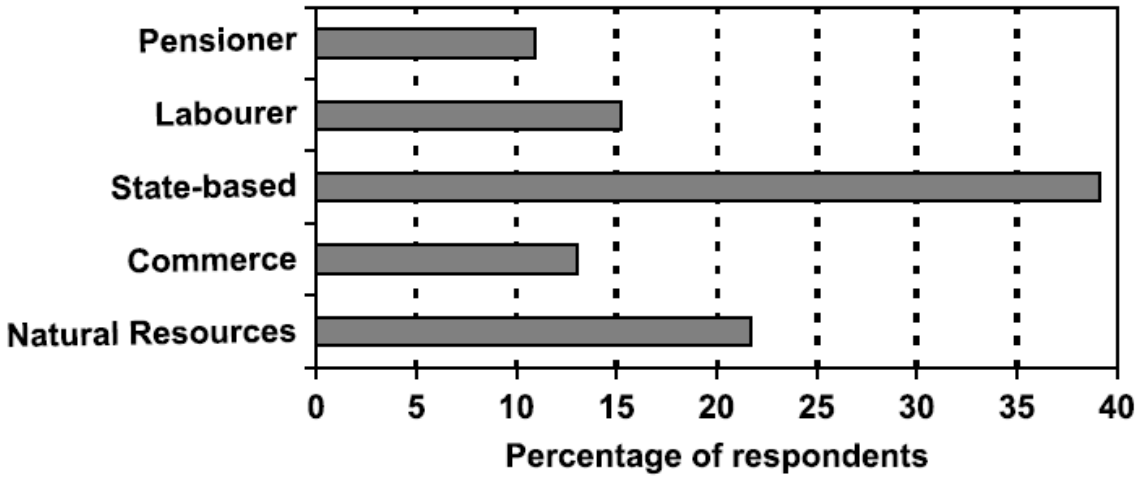
In the case of Valle Grande, the lowland areas to the east are dominated by agro-industrial cultivation and processing of sugar cane. While the sugar estates of Tucumán Province, to the south of the region, are characterized by smallholdings, those of Jujuy and Salta to the north are generally large estates feeding their own refinery. Valle Grande's neighbouring lowland department of Ledesma is dominated by the sugar company of the same name, which owns 35 000 ha of sugar cane as well as 2000 ha of citrus, avocado and mango plantations.

The requirement for seasonal labour in sugar harvesting and processing historically created a flow of migrants from the highland regions. These workers could then return to their pastoral activities during the labour intensive summer period, creating a mutually compatible functional dualism within the regional economy (De Janvry 1981). Of those surveyed, 39% had previously worked for the Ledesma company at some point in their lives, with the figure rising to over 56% if all household members were included. The introduction of mechanized harvesting techniques in the late 1970s and into the 1980s resulted in huge reductions in requirements for seasonal labour. This shift to

capital intensification of harvesting continued into the 1990s, and was accompanied by further restructuring in processing activities. New technologies installed in the refinery, where not only sugar but also alcohol and paper are produced, reduced the permanent personnel by almost 75% in the space of 20 years (IHT 1999).

Figure 4: Industrial employment in Jujuy Province 1991–9 *Source*: IHT (1999)

Figure 5: Primary employment in San Francisco and Alto Calilegua villages



These changes radically altered the seasonal and more permanent migratory flows from the highland areas. The decline of this component of the dualism in the regional economy has led to many migrants either giving up the pastoral way of life or returning to settle permanently in the highland areas. Parallel declines in industrial employment in other sectors further limited livelihood options for much of the workforce (Figure 4). The ability to adapt to these changing circumstances through an intensification of natural resource use in the highlands is dependent to a large extent on access to those resources and the viability of market-orientated production.

Local waged employment

While traditional modes of production continue to play an important role within the study area, waged employment makes an increasing contribution to livelihoods. Migration to agricultural harvests and semi-proletarianization of the population have considerable historical precedents, but increased demands for hard currency have accompanied the greater monetarization of the rural economy since the 1980s. As the urban market for beef reared extensively in the highlands has

declined, residents have had to look for other means of monetary gain, particularly in the form of waged employment within the department itself.

The principal source of waged work is within the state sector, including the police posts, health centres, schools and in municipal governments as well as undertaking road maintenance. Figure 5 shows the dominance of the state as a base for primary employment. In addition to these more permanent postings, significant numbers find temporary employment in undertaking odd-jobs and working on community projects paid for by state social funds. Common to many Latin American countries, these funds are designed to ease the negative short-term consequences of economic restructuring (Graham 1991 1992; Cornia 2001).

The dominant fund in the study area is the *TRABAJAR* ('work') programme, which aims to provide low-wage community employment as a transitional measure pending the implementation of comprehensive labour market reforms and the resumption of economic growth (Eisenstadt 1998). Applications are made from municipalities direct to central government for community projects such as tourist hostels and educational buildings. These projects have provided additional, temporary sources of income for a large number of households in the region, allowing many to meet increased monetary demands caused by increased electricity, transportation and education payments. This source of income has contributed to both the diversity and viability of livelihoods in the area, and has acted to prevent even greater natural resource degradation. Employment within these programmes depends largely on kinship and political ties, with the result that they have become a considerable bargaining tool for local municipalities.

Discussion

Political clientalism

'Clientalism' in its broadest sense refers to 'an alliance between two persons of unequal status, power or resources each of whom finds it useful to have as an ally someone superior or inferior to himself [sic]' (Landé 1977, xx). The basis of such cliental relations is commonly one of patronage, whereby asymmetrical positions are maintained and reinforced by the reciprocal exchange of goods and services for primarily functional and instrumental reasons (Powell 1977).

Recent work in political science has addressed the wider debates surrounding the relationship between civil society and the institutions of the state, including the changing nature of clientelist practices and their relation to the processes of economic and political development (Fox 1994; Escobar 1994; Gay 1994; Panizza 2000). Within the Latin American context in particular, research has focussed on clientalism and patronage as part of networks of survival amongst the urban poor, especially within shanty towns (Banck 1986; Stokes 1991; Burgwal 1995; Gay 1994; Auyero 2000).

This paper extends such analyses to rural livelihoods, stressing the role of 'political clientalism', in which public resources are dispersed (or promised) as favours in return for votes and/or other forms of political support, although this process is more complex than the simple swapping of votes for reward (Banck 1986; Auyero 2000). Local civic–state relations have developed from traditional patron–client relations in common with other Latin American countries. Indeed, they may be encouraged by the national government as part of a wider cliental network (Escobar 1994; Gay 1994; Burgwal 1995). Political clientalism in the study area has constrained political development during the new democratic period, as democratic rights are traded for access to economic benefits

distributed preferentially by local state actors. The structures of political clientalism thereby prevent the transition to democratic citizenship, particularly through constraints on autonomous association (Fox 1994). This occurs because vertical ties within the dominant structure do not encourage independent class or interest-based mobilization.

By limiting the development of social capital in Valle Grande department, local economic development is also constrained by cliental networks and political, family, and interest groups. Where these groups challenge the supremacy of political leadership they may come into conflict. For example, in Valle Grande village a bakery set up through the parent's association of the secondary school came under fire from municipal leaders, principally because of its lack of political association. Similarly, the considerable potential of tourism in the area has been constrained by the need to operate through local government channels. The '. . . limited ability of people to build up, and to draw upon, networks and links with state, market or civil society actors that would otherwise have helped them access, defend and capitalise on their assets' (Bebbington 1999, 20) can therefore be regarded as vital in contributing to poverty and maintaining the department's marginal status. Gay (1994) also notes with regard to the quest for modernization in poor and marginal areas that clientalist relations may work against the development of community facilities such as sanitation and electricity because they can only be provided on a one-off basis. Cliental relations will hence favour the temporary distribution of state resources such as food or labour in order to maintain cliental logics. This may constrain social development and living standards within areas such as Valle Grande. In the case of the study area, however, the competition among municipalities to present a more modern and even an 'urban' way of life has resulted in the development of infrastructural facilities such as the provision of electricity and running water, with labour requirements distributed according to cliental ties:

> "Everything is completely managed by politics these days. It wasn't like that before – but now if someone has work its because of politics".
> Waged worker, San Francisco village

Political clientalism within state-based employment also generates socio-economic instability. First, employment through state work programs is itself highly unstable, with both funding and contracts dependent on the capabilities, political allegiances and contacts of local municipal leaders. This problem was evident during the study period as the national government changed from the (locally aligned) Peronists (*Partido Justicialista*) of Carlos Menem to the Alliance Party (*Alianza*) of President De La Rúa in October 1999. The econo-political instability marking the new millennium is likely to worsen the situation, as party allegiances and contacts are crucial to successful access to TRABAJAR grants and other available social funds, which themselves are under threat from fiscal austerity programmes. Second, many of the younger male adults' livelihoods are dependent on these programmes and on carrying out odd-jobs*, or changas*, like building work, maintenance or agricultural tasks. One 19-year-old's vision of the village's future was heavily influenced by this possibility of further employment:

> "There needs to be a source of work – we need more construction to make the village bigger, more like *Libertador* [the nearest urban centre], more like a city".
> Teenage resident, Valle Grande

As the growth of the village is constrained by its land limits, such work may become more scarce unless it is fuelled by alternative development and the recycling of monetary gains within the local economy. Declining natural resource use in favour of state-sponsored employment appears to

present 'gains' for conservation objectives in mountainous protected areas such as Calilegua in providing buffer zones for the neighbouring national parks. However, the instability inherent in these new livelihood options may result in a return to the natural resource base as a source of income and more environmentally damaging activities. As one resident put it:

> "If people have forgotten how to breed animals and cultivate crops, what will they return to?"
> Pastoralist, Alto Calilegua

This may produce not only direct effects from activities such as erosion through over-stocking, increased use of agro-chemicals and clear-felling, but it also has implications for the loss of cultural knowledge such as crop species diversity and the medicinal properties of local flora (Brown and Levy Hines 1995). As an unofficial buffer zone for the Calilegua National Park, this potential for environmental degradation is all the more significant, and the instability of new socio-economic conditions may therefore threaten global conservation objectives.

Rural livelihoods

The study demonstrates the problematic viability of contemporary livelihood strategies based on transhumance in the mountainous north-west of Argentina (Reboratti 1996; Grau and Brown 2000). Faced with a lack of access to pasture and barriersto market participation including falling commodity prices, mountain breeds of livestock and sanitary regulations, many farmers must look elsewhere for their income sources. These barriers leave the younger generations increasingly reliant upon locally available waged labour and reinforce the flow of permanent migration from the mountain areas.

The withdrawal of land from pastoral use is fundamental to transhumant communities in mountainous areas, yet it is often misrepresented or ignored by policymakers. Similarly, although the conception of such marginal mountain regions as enclaves of subsistence production has largely been broken down, there remains an implicit assumption that these areas are somewhat abstracted from the wider processes of the regional and national economy (Funnell and Parish 2001). The rural economy of north-west Argentina is neither isolated nor self-contained. Rather, livelihoods are influenced by a range of factors operating at both the proximateand distant scales (Gallopín 1991; Wood *et al.* 2001).

Macro-economic signals, while appearing spatially distant, have fundamentally altered migratory patterns in the region as a result of industrial restructuring. Global conservation agendas have placed values on natural resources different from those of local communities, with the consequent loss of access to resources and the ability to capture these values for the latter group. Local and national political interventions have also played a role, through cliental and wider networks of power. Although difficult to quantify, the influence of cultural change and modernization on livelihoods cannot be underestimated. Geographers are ideally suited to the study of rural livelihoods, therefore, as it demands acute spatial awareness of the processes of environmental degradation or sustainability.

The research reinforces the conception of rural livelihoods as diverse and dynamic (Kearney 1996; Preston 1998; Slater 2002). This renders problematic strict divisions of rural livelihood, instead

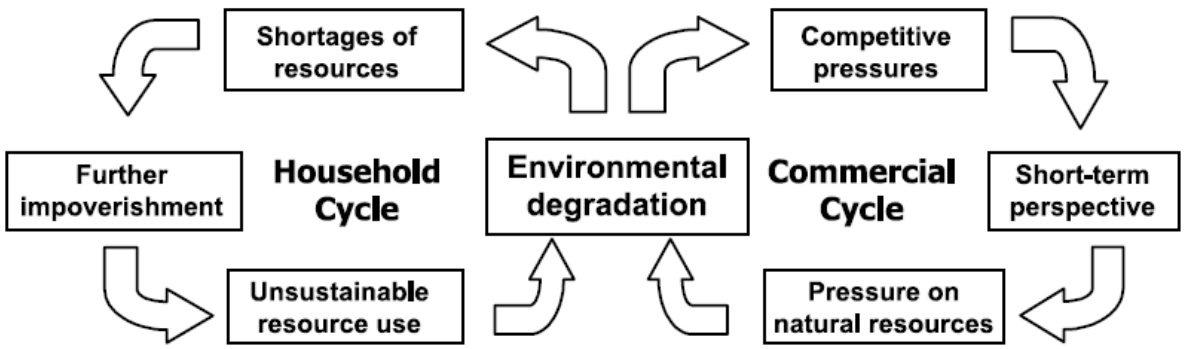
demanding that analysis of natural resource dynamics widens its conceptual base to include a mosaic of different activities. While this may complicate classification by academics, future research must embrace this diversity and acknowledge the fluidity between and across socioeconomic categories (Coomes and Barham 1997). The migratory dynamism present in the study area supports the 'blurring' of the urban–rural divide within Latin America and beyond, with complications for separation of urban and rural research (Kearney 1996; Kay 1999). This dynamism encompasses not only seasonal, permanent and semipermanent temporal scales, but also opportunistic and shorter-term migration, especially that based around commerce and transportation.

This dynamism reasserts the need for caution in rural livelihoods research, which may still overemphasize the importance of natural resource-based livelihoods while ignoring the contribution of other productive activities. In this vein, Bebbington reminds us that in rural research we should 'be careful not to equate agrarian livelihoods with rural livelihoods' (1999, 14). Other income-generating activities also affect environmental outcomes. Sustainability must also be considered as socio-economic, institutional and community and cultural, each with mediating influences on environmental outcomes.

Environment and development in north-west Argentina

In an increasingly inter-connected world, there is a need to examine carefully the nature of processes underlying environmental degradation (Wood *et al.* 2001; Figure 6). This study suggests that, while increasing pressure on the environment through a poverty-led reliance on natural resources may be the focus of much development research and policy attention, industrial processes driving environmental degradation in the region remain greater in both scale and severity. In the study area, oil extraction and its transportation, agrochemical-rich runoff and waste water pollution, air pollution from refinery chimneys and burning sugar cane stands, and deforestation to expand production are serious threats to the Andean and sub-Andean environments (Daniele *et al.* 2002).

Figure 6: Dual cycles of environmental sustainability and degradation



While there have been clear examples of both the poverty-led and industry-led environmental degradation in Argentina (Sawers 2000), the latter processes demand urgent attention. Yet in the current climate, economic factors will tend to carry more weight than environmental factors in policy and decisionmaking. Research and policy, fuelled by sustainable development debates, have been keen to focus on smallholders as the key to environmental degradation or sustainability, particularly as they are the prime resource users in marginal and fragile areas (Browder 1989). This puts the onus on the poor for environment protection, even though they may be forced into unsustainable activity through socio-economic pressures fundamentally linked to industrial processes.

This research supports the critique of economic rationality as the basis for natural resource use. This use is not determined by purely economic signals and therefore cannot be easily predicted using abstracted models of environmental economics. Rather, it is influenced by a complex and fluid mix including social and cultural principles, themselves mediated by political positions, aspirations and power relations (Coomes and Barham 1997). The 'plural rationalities' of natural resource use can only be assessed through greater understanding of these non-economic factors and an acceptance that 'rationality' depends on an individual's position within a community and wider society (Thompson *et al.* 1986; Blaikie and Brookfield 1987, 16).

The case of political clientalism in Argentina demonstrates the need to acknowledge the explicitly political elements which structure livelihoods. The evidence of modern forms of political clientelism suggests that such power relations are not exclusive to the urban setting in Argentina or wider Latin America (Banck 1986; Stokes 1991; Burgwal 1995; Gay 1994; Auyero 2000). Resource use is moulded by politically motivated decisions as well as questions of socio-economic need, and the livelihood opportunities presented to rural residents will also be bound by political circumstances. The plural rationalities of resource use and divisions in local politics contradict the notions of 'community' as a homogenous unit common to much rural development literature (Agrawal and Gibson 1999). The geographical location of Valle Grande department adjacent to a national park gives this particular salience given the notions of 'community' and 'participation' emphasized within new people-orientated approaches to protected areas conservation (Jeanreneud 1999; Brown 2002).

Conclusions

Mountain environments present a wealth of interest for geographical study. This research highlights the interconnectedness of such regions and demonstrates the influence of both distant and proximate factors governing livelihoods and environmental impacts. The dynamism and diversity of mountain livelihoods reflects economic, political, social and cultural factors as well as physical reality (Funnell and Parish 2001), and questions the economic rationality assumed by policymakers and economic models. Just as structural adjustment and the neoliberal policies of the 1980s and 1990s have had profound implications for natural resources in Argentina, so too will the economic crisis of the twenty-first century. This research has highlighted the particular importance of agro-industrial restructuring, the distribution of social funds in the region, and the region's protected areas. The global conservation value of the diverse mountain ecosystems in the country makes attention to environmental consequences of socio-economic change a necessary imperative. The further impoverishment likely to occur as a result of the recent economic crisis gives this imperative even greater salience, particularly as the values of local residents may not reflect global conservation values. An awareness of structural economic, political and social changes play out in marginal regions is therefore required in order to plan and mitigate against the undesirable effects of economic crisis.

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