

Communities and collective usage of land resources in the Andes

Dominique HERVE, *Agronomist*, ORSTOM La Paz, Bolivia
Gilles RIVIERE, *Ethnologist*, CERMA-EHESS, Paris
Luz PACHECO, *Sociologist*, M.Cs. EHESS, La Paz, Bolivia

The debate on the common use of natural or man-produced resources has recently been based on numerous case studies concerning a large variety of resources, carried throughout the world. To what extent do the ways resources are managed depend on the ways people can have access to them? There have been answers opposing private individual access to common access. From a historical angle, we shall try to find out if this development is correct by illustrating the case of long grazed fallow in the Central Andes.

Fallow land is a no cultivated land included in a cropping system. We consider as resources the products and the land too, which is the physical support to the products. Land can be measured (as a surface), divided, appropriated. It can also be transmitted as an heritage, handed over, sold or bought. Moreover, fallowing land makes it possible for the soil to produce plant resources either cultivated for private use or naturally grown for common use. In this study, the resources concerned: fallow land and fallow plant resources are Common Pool Resources (CPRs, OSTROM 1992). Thus speaking of a fallow system seems to be more appropriate insofar as a sole resource, renewable and subtractable, can not be identified. These ways of farming are aimed at producing or extracting a complex resources unit of private or common access which, up to now, differs from a private property. This is the reason why our study simultaneously considers the evolution of access to landed property (explaining the present situation of unequal access to land) and access to soil produced resources, while available land has decreased.

After giving a more precise definition of the concept of land tenure, we shall then give a short account of the history of the different ways of access to land, in a native Aymara community on the Bolivian Altiplano. Since the XVIIth century, it is marked by decreasing available areas. In a now restricted area, the appropriation of fallow resources is now at stake. In the second part, we shall analyse how among production units, land, space and production strategies cross interlink; relations between individual and collective management differ depending on farmers. Last, similarities between these present fallow management systems and XVIth century European commonfields provide us with a few orientations for modeling the present systems.

I. Ownership or landed tenure

The running of long pastured fallowed culture is regulated by community rules. Land is used and controlled in two different ways : **Aynuqa** and **Sayana**. A part of the community land (**aynuqa**), is divided in as many areas than there are years in the rotation of land which is respected by every one (Fig 1). Individual allotments are gathered by areas cultivated for three years and left for pasture fallow land for ten years (Fig. 2). In fact, they are "macroareas" consisting in a major one area and one or several secondary ones not necessarily next to each other (Fig. 3). The remaining land (**sayaña**) is used as natural pasture land or as cultivated plots in ownership near houses which are farmed by the family itself with private inter crops fallow. In the community observed, common rangelands no longer exist.

Actually, all plots are allocated. The difference between these two kinds of land which use is wrongly called private or common, is limited to fallow fodder resources (HERVE, 1993). These are made of culture residues and natural vegetation. When the crop of the last rotation culture is made, pasture land is open to all the animals of the community. In the other case, access is limited to the sole herd of the plot owner. In the absence of enclosures, this kind of managing agropastoral activities over the same area costs less than if a farmer had to watch scattered cultivated plots to keep them from animals. Another difference lies in the fact that **aynuqa** are devoted to common rituals conducted by traditional authorities and the shamans who are the link between the collectivity and the gods. With sayana, symbolical and religious aspects depend more on the individual (RIVIÈRE, 1994).

Even if for the whole part, land seems to be appropriated, the word "ownership" does not exactly reflect the different forms of land appropriation. Property tenure seems to be more appropriate, making a distinction between ownership and control of means of production. Ownership does not necessarily mean control. One should rather speak of individuals' or groups' rights to land: "right to use it, to recover part of the production without having worked on it (annuity), right to transfer owned land, to loose it (as a sale or a gift), to hand over other persons the right to use it" (MAYER, 1981: 128).

If the **aynuqa** system originally granted usufruct during rotation years, yearly random redistribution of land to be ploughed hardly remains. In **aynuqa** and **sayana** as well, plots are allocated with or without any title of ownership. State allocated titles, through the effects of the dependency on the agrarian reform in 1953, recognised the community ownership in "mancomun" or "proindiviso". Some members of the community owning large areas, measured and registered, have avoided this kind of "common" property and now pay taxes for individual private properties. This way, they have a right to alienate them.

Even in **aynuqa**, where a more diffuse hold on land property could be expected, each family knows exactly the limits of its plots and respect other people's ones during the three years they are farmed. These limits become more indistinct over the ten year fallow. At the end, limits are rather unclear : a few stones, a clump of gramineae, bushes left after ploughing. This originates many conflicts. Some people do not hesitate to move boundary markers to get hold of orphans' or widows' plots. These conflicts are dealt with by local authorities, from day to day, and especially during the village meeting on Ash Wednesday. This meeting is still called **Uraq katu** -lit. "distribution of plots" though this is more symbolical than real. There is no doubt that aynuqa land is appropriated on an individual basis even when long term fallow is pastured on a common basis.

There is a ten percent estimate for unfarmed plots in each newly farmed aynuqa area (HERVÉ, 1994). Plots unfarmed by residents in La Paz or by family members living in Pumani do not seem to be alienable by the community. These plots cannot be allocated to young people lacking land since owners fulfil their obligations: duties, quotas, and road maintenance.

Effectively, the right to the land is conditioned by a series of duties and obligations. The first ones consist in farming or having farmed allocated land. If plots are left unploughed, it is then considered as an offence to the community and the gods. The second series of duties consists in fulfilling a number of political-union duties (being a member of the agrarian union) or religious duties (being in charge of saints days, a churchwarden, a warden of the aynuqa, etc.). Throughout his life, each family head will be in charge of these yearlong duties following a hierarchical order. They mean involving a lot of time and spending large sums of money for festivals.

The different kinds of access to land answer strategies of economic and family reproduction which can have changed over the last decades. Traditionally, eldest sons, after they had married, would live for a varying period of time on their parents' **sayana**. The community would then allocate them vacant plots (**puruma**) to build a house and farm. The youngest ones would stay with their parents until they died and would inherit the house and **sayana**. Now land run by the eldest son when he builds a family can only come from the parents' **sayana**. A young couple, representing a new family, builds up the farm mainly thanks to inheritance and thanks to each one's contribution. Cases of acquiring new land are scarce, as an exchange with cattle. It could then become a money purchase transaction.

According to a very old pattern, land transmission was bilateral; men received land from their fathers, women from their mothers. Today, this pattern is hardly practised. The male line receives almost all the land, women receive a small amount if none. Generally when children are of both sex, only boys inherit the fathers and mothers' plots. Girls have a right to it when they have no brothers. To save their properties and be considered as a member of the village, they must then marry someone from the village. In effect, women live at their husbands' houses. In the communities, strong endogamy prevails. These rules of inheritance leave some farmers with no plots at all. It happens when sons were not recognised by the father, or to childless widows whose lands were taken back by the husbands' families when they died.

Differential access to landed property can not only be justified by the traditional inheritance system as shown by latent conflicts inside and outside the community. It is true that it has legally benefited some members of the community. In fact the amount of land depends on the number of children in the previous generations: a man with no direct descendants transmitted his land to his brother's son, which explain why now own large undivided expansions. But some others have improperly extended their areas. **This** happened when orphan children did not know their parents' *aynuqa* limits or when boundary marks were moved onto the holdings of persons considered as weak. Very often these appropriations were ratified by the powerful ones backed by political parties or by the official farmer union.

fl-A history of landed property

2.1. Original inequality of access to landed property

Farmed areas and ways of cultivating vary a lot amongst Aymara communities. In Pumani the richest "comunario" owns over one hundred hectares. On the opposite, several family heads have no plot at all. A group owns approximately 10 hectares but the majority owns less than 10 hectares. These kinds of inequalities find their origin, as we have just seen, in the way land is transmitted. But initial family capitals must be taken into account for here again they were not equal, they were more important for "**originarios**" and far less important for "**agregados**". Until the XVIIIth century, these categories were used to oppose descendants of native populations, met during the conquest, to those of non native or foreign populations. The first ones had access to more land and enjoyed larger rights than the others.

In the community observed, we can notice that the most favoured farmers are "**originarios**" or their descendants; they have more land, enjoy more prestige and tend to monopolise the most important duties. Of an ethnic origin during the colonial period (tax per capita), these categories obtained a fiscal basis during the XIX th century, the surface area of owned land being more important than a remote origin. Belonging to one of either group was not permanent; census regularly made were among other things, aimed at classifying people again depending on the amount of taxes required by the community or on the "ayllu". The two groups existed until the "territory contribution" was abolished at the end of the 1980's. There still is a

very alive opposition in the community memory and "**originarios**" are still associated with the idea of greater status and prestige.

2.2. Land distribution up to 1950

With the Toledo policies of reduction (in the 1570's), the Pumani ayllu, then including both present Upper and Lower Pumani, lost access to colonies in the lower valleys. Thanks to oral tradition and to some old documents, land occupation on the Altiplano can be related. Originally, the population was scattered into different one-or-two family nucleus, settled near watering places or near permanent springs. Lands around the houses were vacant, never farmed (**puruma**) or included in **aynuqa**, under common control after they had been under Spanish control (CARTER, 1964: 26). Besides, families could temporarily live in one or several **anaqa**, small huts located in the higher parts of the **aynuqa**. These were used by shepherds to watch herds during fallow periods. New generations received **puruma** land, thus making **sayana** mini-areas where each family had its own protecting gods. In fact, the concept of **sayana** only became particularly important when fiscal measures were taken by the state during the second half of the XIXth century. These measures made "**comunarios**" pay a tax for a given amount of land. The extension of **sayana** areas depended on the number of families which constituted them and on the required area to grow barley close to houses.

This way of occupying land seems to have prevailed up to the beginning of the 20th century. With demographic pressure the system got stuck: all **puruma** lands were occupied whereas the necessary space for each family became smaller. The end of common ranges dates from this period. **Sayana** are now made up of **aynuqa** or **sayana** plots inherited and/or exchanged -between two or more people. In some cases they are next to houses, in other cases they are scattered over the pampa and on the slopes.

When all **puruma** lands were allocated, a new irreversible process of expansion of **sayana** towards **aynuqa** started. Formerly, **aynuqa** lands were temporarily occupied. When it was time for farming, people living in **anaqa** (shepherds'huts) had to leave during the three following years. For about twenty years now, many **anaqa**, mostly those located in the plain **aynuqa**, especially near watering places, have been transformed into permanent **sayana** with the agreement of the present authorities.

2.3. Modifications of space available after 1950

If demographic pressure is essential to understand the dynamics mentioned, other factors of internal or external origins must be taken into account which contributed to the transformation of space: the Chaco war, the agrarian reform, the 1983 drought, division of Upper and Lower Pumani and finally the merging of two **aynuqa** areas.

In the 30's, fighters in the Chaco war (a conflict between Bolivia and Paraguay) native from the community, asked for extra land as a reward for joining in the defence of the national territory. The only stretches wide enough, access-free, were those located in two **ahijaderos (ayjariru)**. These were pasture-lands used collectively certain times of the year. Animals could drink there and salt could be extracted for cattle. Relying on the legal measures of the agrarian reform, as a native community the Pumani ayllu was not concerned by them, **comunarios** decided they would divide the whole **ayjariru**. Up to that date, they had only been used as pasture-lands and it had never occurred to people that they would be ploughed for growing barley after the 1983 drought. For those who owned a little land, the splitting up was seen as a new way of getting new plots which could possibly be exchanged later. Several families definitively moved to the new area without losing their old **sayana**. For families around, it helped maintaining a now private access to **ch'illiwari** permanent meadows, and to water in the river thus

allowing possible irrigation. On the whole, this endowment has made sharper the divisions between those who benefited from it and the others, who are a majority.

In 1952 the National Revolution has had many effects: agrarian reform, obligatory school for everybody, opening of colonising zones in lower tropical lands, setting of a new market for products and paid work in the main cities. The neighbour ex-hacienda Qullana has been divided up between the former workers which actually employ workforce from Pumani. The great 1983 drought has only increased migratory flux already initiated, either temporary or definitive ones, towards Bolivia and Argentina urban centres. Besides, many young people who had the opportunity of studying in town have not gone back to the community. The same thing has happened with young men who did their military service in garrisons in the country. These different factors added, people between 18 and 40 mainly live outside the community, attracted by the consuming society and by jobs considered as more prestigious.

In this context, the scattered plots and the distance separating them from the house are now seen as drawbacks by **comunarios** who no longer enjoy the workforce of young males. In the past, exchanging plots was done according to its producing value (quality of the soil, altitude, slope). Since 1980, it has mainly consisted in gathering plots all in one piece, in **sayana** or in **aynuqa** close to the house. These exchanges have accelerated since 1983 catastrophic crops and the interest have increased for cattle, less reliant on climatic conditions.

Likewise, in 1986, the splitting of the Pumani ayllu into two communities resulted in the same effect of reducing distances. The division finds its roots in the struggle for influence between families, following the repeal of traditional authorities by the party in power since 1952. The traditional authorities **Jilaqata** alternately came from the lower half or from the upper half of the former ayllu. They rather had a politico-ritual function and were replaced by the agrarian union, supposed to be more submitted to the state. It also allowed Upper Pumani, becoming independent, to benefit from state helps to build its own buildings such as school, church, cemetery... Even if each community now had an independent and delimited territory, some **comunarios** still had aynuqa holdings in the other community and vice versa in adjacent areas. They then have to fulfil duties in the other community.

One must wait until the 1990-1991 farming cycle to see the grouping together of two adjacent aynuqa areas which should have been farmed one year after the other. Those who had more land had no interest in it, but under the final arbitration of the urban president of the community, for one year they agreed upon offering young people an opportunity of access to a larger number of holdings. It was certainly with the aim that young people would avoid going working outside the community. All farmers could not adapt to the new situation the same way (HERVE, 1994). If the decision were renewed each year, it would lead to reducing the length of fallow and it would really represent a major change in every respect: agronomic, social, religious and symbolic principles of the community.

The changes described here in a community on the Bolivian Altiplano are relevant of dynamics often observed in Andean communities : reduction of space, the last available common land divided into plots, splitting former community administrative boundaries, reduction of fallow duration.

2.4 Fallow appropriation

When free areas have been divided and allocated, what is left to share? We have seen that the fallow appropriation fundamentally differentiates **aynuqa** and **sayaña**.

In fact, fallow lands provide three different kinds of products : culture residues (potato tops; quinoa stalks, wheat or barley stubble), weeds, sometimes considered as an important fodder supply, and a bush of the compositae family used as fuel. The first two ones are resources directly or indirectly produced by man; "private rights to the product of the land extend not only to the crop but to the crop residues too" (WADE, 1992: 213). Though among residues, a difference must be made between the part of the fodder crop, including weeds, which will be fed to animals - the amount picked up depends on the available workforce and means of transportation- and the part left on the ground, the stubble. The last issue of appropriation lies on the stubble. Individual access to stubble is only limited by the time all animals (cattle, then sheep) are let onto the harvested plots. But because of late-comers, one can likely think that over a whole plot some residues will be left for land less farmers.

The last resource, shrubs, which could be considered as natural, results from a colonizing process by vegetation in pastured fallow lands. It is strongly influenced by farming technics. Shrubs colonizing long term fallow land, *Baccaris incarum* or *Parastrephia sp.*, belong to no one. It is picked up mostly at harvest and sowing time, when swing ploughs cut cross furrows thus thoroughly cleaning the soil. Once the t'ola picked up at harvest time, on a private plot, or at another time on long term fallow areas, it belongs to the person who picked it up. If once stacked upon the ground someone takes it, it will be considered as a theft. Picking up and clearing up gave a right to get hold of the natural resources (THOMSON, FEENY, OAKERSON, 1992: 156). This appropriation is only transferable and alienable if it results from ploughing on private plots. The right to pick it up can be transmitted by the plot owner to other persons but, as for the use of the soil, the right to uproot shrubs is exclusively the owner's one.

Access to ligneous fuel is ensured by the free circulation of people on fallow land. Given the absence of common ranges, possibly growing shrubs, and the low development of alternative fuels (gas, kerosene), this access is strategic. It is the only source of fuel for land less farmers or for those who do not own many heads of cattle, dried dung being the other source of fuel. Wood to burn or dung piled up near houses are proportional to the surface area of the farmed land and to the size of the herd. They are buffer supplies. Families who have none dedicate part of their available workforce (women and children) to picking up dung or up rooting shrubs.

The evolution of the rules regarding the appropriation of ligneous fuel can be a good indicator of the future appropriation of fallow land. "Attempts by individuals to police wood on fields, and thus in effect to establish private property rights over these trees, represent efforts to parcel out the commons" THOMSON, FEENY, OAKERSON (1992:143).

III- Land, space, and production strategies

Land strategies reveal a trend, shared by everyone, to increase and gather lands in **sayana** or nearest **aynuqa** so as to shorten distances to work and to face a relative deficit of workforce (HERVE *et al.*, 1994). Only one farmer dared giving up his **aynuqa** lands; all the others are distributed along a gradient of the **aynuqa/sayana** relation. It must be compatible with the management of climatic hazards. Space concentration, in one or two sayana, supposes that a minimum diversity could be recreated, considering climatic hazards or that their sizes could soften them or that another less climatic reliable product as barley may be cultivated. In the Andes, climatic stress, particularly frost, hail, and drought occurrence and localisation have required distributing fields among plains and slopes (upper and lower ones) and between different types of soil.

But today, the major goal no longer appears to be scattering risks only. It is also a maximum shortening of distances to cover walking and with donkeys for lack of other means of transportation. It is then easy to understand that the different individual strategies result from the interlinking of land, space and production strategies.

3.1 Land strategies

They are the ones aimed at increasing farmed surface areas. Three cases can be considered.

- A second sayana is acquired following the appropriation of ch'illiwar land, or by marrying a brotherless woman, or by inheriting. This is a situation in which practise bypasses the common law since normally a family can be allocated one **sayana** only. It allows organising sowing and harvesting mainly from another home. Seeds, tools and products can be stored by kinds of activities avoiding going back and forth.

- New land is acquired within the community either by purchase (exchanging something different or by paying with other products) or despoilment thanks to a network of relations and political support. This evolution of land use value to exchange value is yet admitted by a few persons only.

- Tenants farm the land. Different forms of sharecropping have developed with those living in town and among farmers in Pumani. One can wonder if these contracts would not to a certain extent benefit of existing land inequalities. The variety of contracts made covers the whole range of possible exchanges of means of production (land, draught animals, seeds, workforce). Handing over or taking land in sharecropping can also answer space strategies. People resort to them to farm the most remote aynuqa plots.

3.2 Space strategies

They aim at gathering scattered plots and getting them closer to houses. But getting new land is only possible by exchanging plots similar potentially-wise. These exchanges can take different forms.

- The management status changes ; **aynuqa** vs **sayana** ; a previously **aynuqa** plot becomes a **sayana** one without questioning the status of the aynuqa area in a first time. This process may affect all the **aynuqa** areas next to the **sayana**. But setting houses on former **aynuqa** lots when living there was only temporary, is possible near watering places only, in the following **aynuqa** areas: Qafiawiri, Titiri, Tuntachawi (Fig. 2).

- Standard exchange between a remote aynuqa plot for an aynuqa one near the sayana. Each sayana has one or two neighbouring aynuqa areas. One can notice that farmers have very few plots they work themselves more than three hours by walk away. In effect out of nine hours (daily working time excluding domestic activities) only three remain to work on the fields, which seems to be the minimum admitted.

In any case, there must be plots to be exchanged. The poorest people must content themselves with a few scattered plots imposing the maximum walking. Some families can not even change theirs for others because of their being too exiguous. These plots exchanges have been investigated in one special case (PACHECO, 1994).

The small Ax aynuqa in the Qhapaq Amaya zone was associated with the main Qanawiri aynuqa. According to the oral tradition, all comunarios of the area could have access to

it. However a study of the 32 plots it consists of today shows that, following numerous exchanges, they now belong to people from Qhapaq Amaya. Among the 32 plots, only five are aynuqa managed. For being located in the middle of the **sayana**, it prevents them being incorporated to grazed fallow. Only their owners can use them as pasture lands. All the others are private and incorporated to the different family sayana.

Over the last 30 years, the other 27 plots originally belonging to 20 family heads have after various transactions been concentrated in the hands of 6 persons. 23 out of the 27 belong to 3 comunarios owning a **sayana** in the area. A father C1 and his two sons C2 & C3 are really interested in getting plots on the neighbouring sayana and aynuqa. Since they have already exchanged 13 plots with plots from various aynuqa, they admit now not to have enough land for the exchange nor plots wide enough they could interest the other owners.

3.3 Production strategies

Do stresses on the environment allow developing very different production strategies? Alternatives to species are limited : triticale, vetch, alfalfa used as fodder, kinds of potatoes more frost resistant, a very limited use of chemical fertilizers because they are negatively perceived and because of a negative cost/climatic risks relation. Variations seem to mainly concern livestock and the relative importance of cattle and sheep herds. Sheep herds are closely linked to areas sown with potatoes.

Possibilities of intensification of cattle depend on the access to three kinds of resources: barley, ch'illiwir damp permanent grasslands, alfalfa. Crops residues do not provide enough or regularly to meet the feeding needs, especially at the end of the dry season. The combination of these three resources is uneven depending on the **sayana**. Intensified cattle raising can only be planned in areas with large access to ch'illiwir included in sayana. On the contrary, different sized herds can be found in each areas: there is no superposition between land strategies leading to a given farm size and location in sayana areas.

An important technical innovation introduced after the agrarian reform was the tractor. Used for ploughing, with a disk plough, a tractor can in one row plough 4.5 hectares a day and up root the shrub. With a swing plough, it would take two crossed rows over 0.5 hectare a day. With a tractor only one person is at work, in the second case there are two persons if the daily working time is respected. Using a tractor is not much more costly than using a swing plough and feeding draught oxen but it needs cash money. Everything coincides to strengthen the Jisqha Juqhu and part of the Qhapaq Amaya farms, where tractors are used to sow sayana with barley and on exchanged plots gathered together in areas next to Qhutana and Tuntachawi. These areas are the nearest to Qullana where the tractors come from. But the use of tractors hasn't been increase for the climatic risks. Some other farmers can at times resort to it for some of their plots thus managing to solve "bottlenecks" as far as ploughs, yuntas or male work force are concerned. Even though the investment done the first year may not profit. But since the land exchange has been espread, the use of tractors is more common than the previous decades. For the moment it does not seem to question the aynuqa system.

IV. DISCUSSION and CONCLUSION.

A current debate concerning land tenure must not be left aside, that of the evolution of the system of generalised reciprocity. Until when selling land to people foreign to the community will be forbidden? To what extent and up to when will the community be allowed to demand landowners to fulfil rotate duties? In effect, only this acts as a brake to the generalisation of property without usufruct. Thus, those living in town put pressure to be released of these duties as a counterpart to keeping their rights on the plots they still own.

The abolition of territorial contribution to the State could be seen as a political strategy to introduce land free market. This would certainly result in modifying the communities and certainly in wiping them out as territorial and social units since the management of material and symbolic things still largely remains under community control. A land free market would also result in dismantling the aynupa system which according to CAMPBELL and GODOY (1992: 116) would take time to be locally given up "...because the system could only be dismantled if the common rights that applied to it were dissolved first, a step that entailed considerable costs because it required a consensus particularly difficult to obtain where there were so many vested interests". Does the process only depend on internal factors? "At the scale of a community, a tendency by local groups to appropriate land and a movement of expansion of the land market on a national level could end up coinciding" (GASTELLU, 1994: 356), to the expense of the "community". What is not yet known is how in practice the free market would be made and who in the area would benefit of it? Irrigated or humid lands, near main roads, will likely be appropriated for cattle farming, when the poorest ones will be left on the surroundings on scattered plots on slopes.

Working on a present situation reflecting what happened with English commonfields in XVI and XVIIth century seems to be quite interesting. This system is still applied in the Andes even with the use of tractors. The reasons for maintaining such a management of land have not yet been totally explained. One can find here the same system than described by CAMPBELL and GODOY (1992) concerning plotted agriculture in the Middle Ages in England "peculiar blend of private and communal endeavours" and scattering plots to minimise risks which lead to low costs of supervision (FENOALTA, 1988). The debate on scattering plots, managing risks and gathering or not plots before enclosure (CLOSKEY, 1976) remains of actuality. Two differences must be underlined: the remaining of common rangelands and the role of the lord "Village land belonged to the lord transmitted by inheritance laws in default of heirs did it revert to the lord, who might then reallocate it among his tenants.." (CAMPBELL and GODOY, 1992: 115).

The parallel with the situation in Spain at the time of the Conquest brings a lot of information as well "Commonfield agriculture disappeared over much of Spain beginning with the reign of Philip II (1566-1598), in the later Hapsburg period" because "fiscal policies led to the disappearance of public and semiprivate lands to which the crown lord claims" (VASSBERG, 1975). According to GODOY (1991): "First, like most European commonfield systems, village agricultural lands in Spain were divided into two, three or four types of commonfields, known as either hojas, tablas, turnos, or as suertes...the village council only opened the commons for use by family heads" (FOSTER, 1960). It explains what Spaniards brought to the Andes "Herds of cattle and sheep could and should systematically graze on the stubble after harvest crops on arable land and on fallow lands" (GODOY, 1991:403). "In fact, it was the Spanish settlers in the New World, drawn mostly from the poorer strata of Spanish society, who lobbied the most intensively in the New World for legalisation of stubble grazing rights" (GODOY, 1991: 404). Observations on after crop fallow could apply to situations met in the Central Andes nowadays.

"Village herds-usually sheep, hogs or cattle- grazed on the stubble (known in both medieval Spain and in the Andes today as rastrojo), a widespread practice in Europe and in Spain where it was known as derrota de mieses.." "The custom of the derrota required every possessor

of a field after the harvest and every possessor of a meadow after it had been cut to open his lands to the animals of the general public" (VASSBERG, 1974: 386). "...the derrota allowed farmers with scattered holdings to release their animals to feed on the weeds and stubble left after the harvest rather than to graze animals exclusively on the farmer's own land" (VASSBERG, 1974 : 387). Gleaning seems to be allowed to "lacklands" and herding organised in common, in the stubble. Common herding of the sheep used to be done in Pumani but it no longer is (PACHECO, 1994: 281).

Because of similarities with past situations, one should be very cautious in analysing isolated cases. A historical perspective is necessary, for example compared analyses of space and time. These similarities represent a justification for us to develop models of multiple agent representation, taking into account physical environment sciences as well as social sciences; "human management system interacts with the natural variability" (FEENY, 1992). These efforts are made to plan and better manage the future evolution of systems concerned. May be used to better understand the past. Within this topic, one key issue appears to be **the relations between individually made decision, collective decision and negotiations.**

Indeed, we have shown that there is no opposition between all private/individual and all common/collective but for a clever balance between individual and collective. Likewise, we have not met a single form of private property but different ones, not a single natural resource but a complex set of resources. The ways of appropriating soil products vary depending on the nature of the products and can be dissociated from owning the soil-support. The commons don't fail but this question is a more complex one, which doesn't limit itself to an exclusive opposition between individual/private and pluri-individual/common access. BROMLEY (1989: 875) justly note: ".property arrangements are not bimodal but in fact are to be found along a continuum.". **The main question is to know how to manage individual and collective systems**, which may be our best contribution to reinventing the commons.

REFERENCES

- BROMLEY D., 1989. Property relations and economic development: the other land reform. **World Development**, Vol. 17, N°6:867-877.
- CAMPBELL B., R. GODOY, 1992. Commonfield Agriculture: The Andes and Medieval England Compared. **In Making the commons work. Theory, Practices and Policy**, Bromley D.W. ed., ICS Press, San Francisco, USA: 99-127.
- CARTER W., 1964. **Aymara Communities and the Bolivian Agrarian Reform** (Social Science Monograph N°24), Gains ville, Fla: University of Florida.
- CLOSKEY D., 1976. English openfields as behaviour towards risk. In **Research in economic history**, P. USELDING ed., Vol. 1,124-170.
- FEENY D., 1992. Where do we go from here? Implications for the research agenda. **In: Making the commons work. Theory, Practices and Policy**, Bromley D.W. ed., ICS Press, San Francisco, USA: 267-292.
- FENOALTEA S., 1988. Transaction Costs, Whig History, and the Commonfields. **Politics and Society**, 16, n° 2-3 (1988): 171-240.

GASTELLU J.M., 1994. Reflexiones. In: **Dinámicas del descanso de la tierra en los Andes**, D. HERVE, D. GENIN, G. RIVIERE eds., La Paz, ORSTOM-IBTA, 349-356.

GODOY R.A., 1991. The Evolution of Common-Field Agriculture in the Andes: A Hypothesis. **Comparative studies in Society and History**, Vol. 33 (2): 395-414.

HERVE D., 1994. Rotation collective et mise en place individuelle de l'assolement dans les Andes. In **Recherches-système en agriculture et développement rural**. Montpellier, FSR Symposium, 286-287.

HERVE D., GENIN D., RIVIERE G., MIGUEIS I, PACHECO L., 1994. **Jachères et dynamiques sodo-économiques dans les Andes: états, représentations et gestion du milieu**. Rapport scientifique CNRS, La Paz, Bolivie, ORSTOM, 53 p.

MAYER E., 1981. **Uso de la tierra en los Andes. Ecología y Agricultura en el valle del Mantaro del Perú, con referenda especial a la papa**. Lima, Perú, CIP, 127 p.

OSTROM E., 1992. The rudiments of a theory of the origins, survival and performance of common-property institutions. In: **Making the commons work. Theory, Practices and Policy**, Bromley D.W. ed., ICS Press, San Francisco, USA: 293-318.

PACHECO L., 1994. El sistema de *aynuqa* en Pumani. Dinámicas y tendencias. In: **Dinámicas del descanso de la tierra en los Andes**, D. HERVE, D. GENIN, G. RIVIERE eds., La Paz, ORSTOM-IBTA, 271-289.

RIVIERE G., 1994. Cultura y cultivos. El sistema de *aynuqa*: memoria e historia de la comunidad (comunidades *aymara* del altiplano boliviano). In: **Dinámicas del descanso de la tierra en los Andes**, D. HERVE, D. GENIN, G. RIVIERE eds., La Paz, ORSTOM-IBTA, 89-105.

THOMSON J.T., D. FEENY, R.J. OAKERSON, 1992. Institutional dynamics: the evolution and dissolution of common-property resource management In: **Making the commons work . Theory, Practices and Policy**, Bromley D.W. ed., ICS Press, San Francisco, USA: 129-160.

VASSBERG D., 1974. "The *Tierras Baldias*: Community Property and Public Lands in 16th Century Castile". **Agricultural History**, 98 (3): 383-401.

VASSBERG D., 1975. "The sale of *Tierras baldias* in sixteenth century Castile". **The Journal of Modern History**, 47 (4): 629-54.

WADE R., 1992. Resource management in south indian villages. In **Making the commons work. Theory, Practices and Policy**, Bromley D.W. ed., ICS Press, San Francisco, USA: 293-318.