

Collective alps in the Alpine region of Germany

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SUMMARY

In Germany the *Allmende*, the old designation for the collective pastoral organizations, have a long tradition going back several hundreds of years. Until the 19th century the *Allmende* systems were present all over Germany. After the secularization in the 19th century their number decreased strongly. Nowadays they are mostly restricted to the Alpine region in Southern Bavaria. These joint organizations are based on a consensus between one or several land owners and several land users. The latter ones own the right to use the land for grazing activities. The right users are usually organised in cooperative or association form and they manage collectively the utilisation of the pasture. The jointly organizations are often regulated by traditional rules.

The collective alpine pastures play a significant role for the conservation of the region's landscape, biodiversity and the recreational values. They contribute to the maintenance of the regional economy and identity.

This paper carries out an analysis of the collective alpine pastures existing in the alpine area of Bavaria. It gives first a detailed description of the structure, stakeholders and institutional assets governing them. Secondly it provides an appraisal of the efficiency and potential problem regarding their utilisation intensity. The appraisal reveals that some components like property rights and rules seem in some cases to defect. For instance rules are lacking in situation where use of the resource is depleted. Moreover the adaptation of some rights such as access and exclusion right seems important to guarantee the continuity of utilisation of the pastures. The characteristics of the community and the level of decision-making perform a relatively good social cohesion among the collective alps. Financial support and involvement of extern institutions reinforce the signification of the collective alps, although it has some reverse effect on the systems. Individual interests in the exploitation of the resource seem to play a significant role as well. All these points deliver a first draft of explanation regarding the current use of the systems.

1 INTRODUCTION

A specificity of the southernmost part of Bavaria is the presence of numerous collective pastures used for grazing activities. There, from a total number of around 200¹ collective pastures inventoried in Bavaria, over 75% of them are located down to the border with Austria (Fig. 1).

When compared to other districts it seems that the survival of these "relic" organization forms is motivated by the specificity of the pronounced geographic relief. Indeed there the alpine

¹ Sources: Own survey carried out by the Bavarian boards of agriculture, 2004.

range astride the German border and the collective pastures are predominantly located on higher altitude (> 700-800 m).

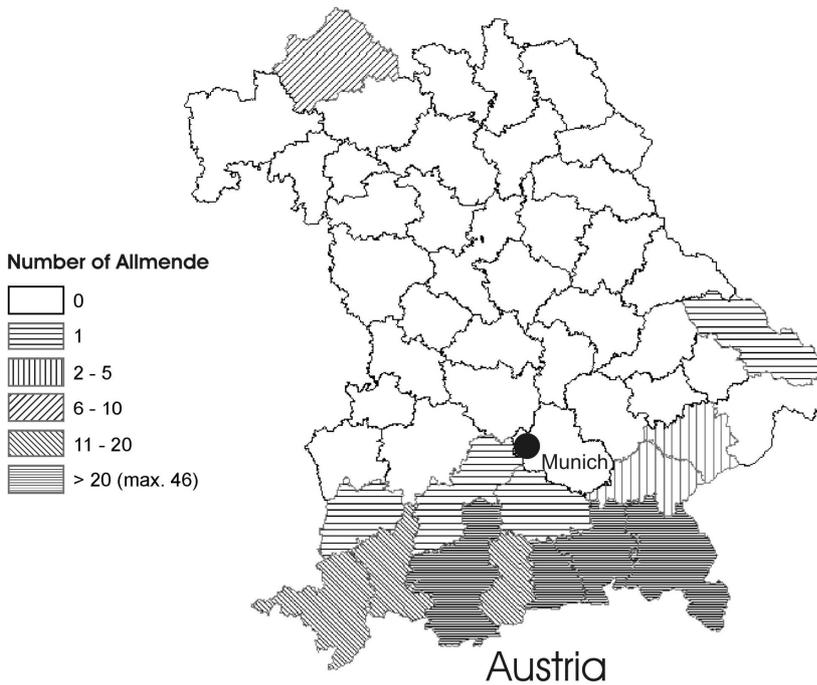


Fig. 1: Allotment of the *Allmende* in Bavaria.

Source: Bavarian boards of agriculture, own survey, 2004.

Pronounced geographic relief accounts for constraints in the utilisation of the land. Agriculture in this area cannot operate the process of intensification as in the plain regions. This might explain the maintenance of the collective pastures. Collective action may withstand easier natural constraints as individual action.

There was a long-established tradition of collective grazing systems in Germany dating back to the 5th and 6th centuries (BStMELF 1972). *Allmende* is the German old designation for the collective pastures. The *Allmende* gathered pastureland and woodland often located in the periphery of the village. They were granted to the villager for grazing activities of the animals and for the collection of wood. The secularization at the beginning of the 19th century has lead among others to land despoliation. The land of the *Allmende* became often very coveted for hunting and timberland purposes (BStMELF 1972). This generated the large decline of their number in Germany. This process was also amplified within the 19th and 20th centuries with the intensification of the agriculture. Southern Bavaria is one of the few regions where this

tradition survived till today. In the alpine fringe, the remaining *Allmende* were not so coveted. Several reasons can be imputed to this specificity such as the steepness, the difficult accessibility to the land, the low productivity of the land. Moreover it seems that the collective action in this region stick stronger than elsewhere. Exploitation of the land in marginal region being very time consuming, it is easier to operate it collectively as individually.

At present in the alpine range from a total number of around 1400 alps² we count 150 (17%) of them under the status of collective alps. They totalise an area of approximately 55.000 ha (included pasture, woodland and waste land) accounting for over 40% of the total acreage of the alps.

Nowadays the collective alps are tied in a twofold farming system depending on the altitude (upland – lowland) and the season (winter - summer). Down in the valley, farming units are composed of relatively small-scaled private farms. Each farmer own or rent the land individually for running its business. The land is used for both grazing and fodder conserve. They herd cattle or flocks out of the summer season partly indoor and on pastures. Upland, the units of the collective alps are large-scaled and are used during the summer. These units are in the ownership of different corporate bodies (private person, local authority, cooperative...) and are jointly used and managed by several lowland private farmers. The farmers send along this season a part of their cattle (mostly heifers) or flocks up for grazing activities.

This paper carries out an analysis of the collective alpine pastures existing in the alpine area of Bavaria. It gives first a detailed description of the structure, stakeholders and institutional assets governing them. Secondly it provides an appraisal of the efficiency and potential problem regarding their utilisation intensity.

2 METHODOLOGY

2.1 Materials and methods

In southern Bavaria interviews were carried on between spring and autumn 2004. Altogether 26 collective alps were investigated in the study area. The goal of this investigation was primarily to get an overview of the organization of the cooperative pastures. The 26 collective alps are located in the alpine region. The interviews were carried out according to indicators and questionnaires. A bundle of data were recorded including institutional indicators such as

² We used the term alps to design areas composed of pasture, wood and waste land, situated in the alpine fringe, on altitude higher as 700m and used for pastoral purpose.

legal form, nature of the stakeholders, rules, rights, commitment, social issues. Moreover, during fall 2005 a field survey was conducted on the 26 collective alps in order to evaluate the productivity and the intensity of utilisation of the sites.

2.2 Theoretical approach

2.2.1 Institutional economics

To achieve a detailed and precise analysis of cooperative systems one suitable approach is to concentrate our analysis on the institutional economics theory and more precisely on the concept of common property applied for natural resource management.

A concise definition of this theory was proposed in ICLARM (1996 p.4): “institutional analysis, (...) focuses on the institutional arrangements, the set of rights and rules by which a group of actors and government organise resource governance, management and use in collective action situations”. Behaviour of the actors in a collective organization is stipulated by the rules inherent to the organization or to others bodies. In this sense individuals cannot act following their own interests. They have to be considered in relation to the whole organization structure and governance system. This consideration motivates our choice for the institutional economics.

MEINZEN-DICK ET AL (1999 p.40) affirm that “when control over resources is transferred more or less completely to local user groups, it is often referred to as community-based natural resource management (CBNRM).” Considering that CBNRM match to our collective alps (this will be demonstrated in the following sections), the relevance to the institutional economics theory for analysis our collective alps is reinforced by the following assertion: “Institutional analysis has become a useful tool in the field of community-based natural resource management (CBNRM) for understanding how local communities manage resources” (HIDAYAT 2005p.54).

2.2.2 Framework for institutional analysis

For conducting the institutional analysis of the collective alps we use an analytical framework. It is a tool which conceptualizes the system in a group of variables belonging to the system and having an impact on it. Many were developed in the last decade, each having its own specificities. We will use for the purpose of the study the Part One of the conceptual framework developed by a team of GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit). A picture of the framework is presented in Fig. 2 (FISCHER ET AL. 2004 p.7). It is based on the Institutional Analysis and Development Framework (IAD) developed

by OSTROM ET AL (1994). IAD is a major analytical tool which helps for empirical analysis of common property and governance. The particularity of the IAD and related arranged frameworks are the focus on the factors influencing the resource utilisation. The use of the resource is not a straight relationship with human action. It is a more complex problem depending on the characteristics of the resource and the regimes regulating the resource use. The GTZ Framework catches our attention because it offers a relatively global view of the levels of analysis without specifying too much in details the different attributes. In this way the authors are legitimated to complete according to the characteristics relevant for their studies on behalf of the literature. Moreover the framework gives the attributes a cornerstone function. These ones act as incentives (or disincentives) towards the actors on the degree of collective utilisation of the resource. It offers a dynamic approach while depicting the relationship between the variables and their influence on the outcome. However in our view to make a complete picture of the systems two characteristics are missing. On the one hand the exogenous attributes constituted of macroeconomic, political, social and individual characteristics. They have impacts on the goods, the community and the rules. We missed also the feedback effect from the outcome on the incentives and action.

The variables of the framework will not be described here as it is not the object of the paper. For more information the reader has to refer to the literature where a considerable amount of work has been delivered about IAD and related framework and the description of the variables.

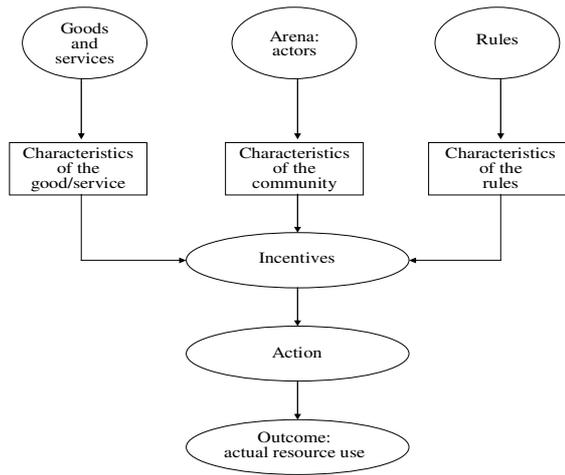


Fig. 2: The GTZ conceptual framework, Part I: Situation analysis
 Source: (FISCHER ET AL. 2004 p.7)

3 RESULTS

We carry out our assessment of the collective alps according to the elements of the framework. First a general overview of the physical characteristics of the collective alps will be depicted so as the exploitation level of the pastoral resource. Then the specificities of the organization and of the community are presented. Thirdly an institutional analysis is conducted based on the property right regimes and the rules in order to appreciate the degree of cooperation and arrangement. Finally some economic data of the collective alps are highlighted.

3.1 Physical properties, organization of the resource and utilisation intensity

The following section concentrates on the description of the alps and the exploitation of the pastoral resource.

3.1.1 Identifying the resource uses

The first question arising is to identify the utility provided by the collective alps. It is important to do it in a first step since institutions and rules are specific to one utility and not to the whole resource. In this sense we want to give a more precise definition of what we called “collective alps”. According to our considerations the mention “collective alps” signifies “jointly used rough pastures”. This definition will show its relevance when analysing the property regimes (see 3.3).

The main functionality of the collective alps is since centuries to provide a designated group of people with pastoral resources for grazing purpose. So the function deriving from the natural resource is the production of fodder.

When drilling a bit deeper it appears that the collective alps beside their productive function of fodder provide additional services. For instance they play an important function as habitat for the conservation of endemic plants and animals (LEDERBOGEN ET AL. 2004). They also have an important function for aesthetic, recreational and cultural value for the society. For example their maintenance is a guarantee of the attractiveness of the region for tourism activities.

3.1.2 Description of the collective alps

3.1.2.1 Altitude and size of the collective alps

The investigated collective alps range from altitude between 700m up to 2.200m, most of them being situated on an average altitude above 1.100 m. Altitude plays a role for the allowance of subsidies (such as compensatory payment for Less-Favoured Areas). Alps situated over 1.000m get the maximum allowance of the grassland premium.

Tab. 1 shows the distribution of open pastures and total acreage of the 26 investigated collective alps. The total acreage includes the open pastures, the woodland and the waste land.

Tab. 1: Size of the collective alps in ha (n³=26)

	Min.	Max.	Average	Median	75% Quantile
Open pastures (ha)	2	604	200	125	282
Total acreage (ha)	10	7.400	627	131	414

The total acreage of the collective alps ranges from 10 to 7.400 ha with an average of 627 ha. The low values for the 75% quantile clearly indicate that most collective alps are much smaller than the average of roughly 627 ha. The large share of total acreage can be attributed to particularly two collective alps with very large acreage of “waste land” (respectively 3000 ha and 7000 ha). This skewed distribution is smoothed if one considers only the distribution of open pastures. On average 200 ha of the 627 ha of total acreage provide open pastoral resources.

3.1.2.2 Livestock

The number of animal pro collective alp reaches in the mean 169 Livestock Units (LU). However the value of the median indicates that usually a lower number of LU are present on the collective alps. The high value of the average can be attributed to particularly two collective alps with a high animals ratio (respectively 590 and 780 LU).

³ “n” refers in the paper always to the number of collective alps.

Tab. 2: Number of animals grazing on the collective alps in Livestock Units (LU) (n=26)

	Min.	Max.	Average	Median	75% Quantile
Number of animals (LU)	9	780	169	118	188

Cattle are the dominant type of livestock grazing on the collective pastures (Tab. 3). Thereof heifers represent the most important contingent constituting 68% of the total number of animals. Dairy cows are present in ten pastures, but being only in two of them of some significance considering the stocking density. In the investigated collective alps boarded animals account for 40% of the pasturing livestock units. The remaining is owned by members of the respective collective organization. In contrast to the other types of animals, the pasturing dairy cows are all owned by the members (no boarded animals). In our sample five collective alps prohibit the grazing activity through boarded animals.

Tab. 3: Type of animals grazing on the collective alps (n=26)

Number of animals (LU) Type of animals	Number of animals (members)	Number of animals (boarded)	Total	%
Young cattle (6 m – 1 year)	102	28	130	2,5
Heifers (1-2 years)	1768	672	2440	46
Heifers (> 2 years)	707	355	1062	20
Dairy cows	377	0	377	7
Male cattle	10	4	14	0,2
Horse	347	203	550	10
Sheep	445	249	694	13
Goat	45	1	46	0,9
Total	3801	1512	5313	

3.1.2.3 Utilisation of the pastures

3.1.2.3.1 Grazing management

Grazing activity on the collective alps in the region is a seasonal activity. The animals are sent over the summer on the alpine pastures and will spend the season over there. They are transferred (either by walk or with vehicles when the distance are too far) from the private pastures in the valley in spring to these summer pastures in the mountains. This process allows the valley grassland to be used from dairy cattle in summer and for the production of winter fodder. In autumn the animals will be fetched and conducted back to the valley before the first snow. Some collective alps own pastures at lower altitude down to around 700 m. These ones are usually used in early spring and last autumn before and after the turning out to the mountain pastures. In one of the investigated collective alps a portion of the collective pastures is situated down in the valley and therefore is used all year-round for daily grazing by a herd of dairy cows.

Most of the pastures are fenced. Only in one investigated collective alps, no fences are present. It uses the natural border (wood and steepness) as boundary to limit the displacement

of the animals. In nine of the collective alps the pastures are grazed on a continuous pattern i.e. the animals stay over the season on the same plot. The others are used on a rotational pattern with one or several herds grazing between a few plots. In one of them the rotational pattern is relatively intensive since the pastoral resource is divided into a dozen of small-scaled plots where several homogenous herds rotate.

The monitoring and control of the animals on the collective alps is predominantly fulfilled by employed shepherds since in 22 of the investigated collective alps, shepherds are present.

3.1.2.3.2 *Grazing duration*

The animals are spending averaged 4 months on the collective alps (Tab. 4). Depending on the alps this can vary from 3 months (91 days) to 5 months (153 days).

Tab. 4: Duration of grazing period in days (n=26)

	Min.	Max.	Average	Median	75% Quantile
Duration of grazing period (days)	91	153	118	115	131

The grazing period depends on the location of the collective alp, which determines the temperature and the rainfall. There is normally a smooth correlation between the duration of the grazing period and the altitude. The grazing period seems to be longer on collective alps having parcels on lower altitude.

3.1.2.3.3 *Stocking density and utilisation intensity*

Stocking density is calculated for each collective alp taking into account the number of livestock units (LU), the open land acreage and the number of grazing days per year.

The stocking density varies between the collective alps from 0.09 LU/ha to 0,7 LU/ha (Fig. 3). However most of them have a stocking density comprises between 0,1 and 0,5 LU/ha. In some of the collective alps the stocking density shall be even slightly lower since forest pastures are also grazed. For two of them the acreage of forest pastures was considered in the calculation of the stocking density. Indeed in these two cases the forest pastures compose the most important grazing resource.

Altogether with a median of 0,3 LU/ha and a 75% quantile of 0,4 LU/ha (average of 0,3 LU/ha) the assertion of the statistical evaluation reveals that the collective alps seems to be low-intensively used. On the behalf of these data it is however difficult to appreciate the utilisation level on the pastures. The productivity of these pastures is on average low due to the climatic and geographical constraints and can shows big variation from one place to another. For this reason we carried out field studies.

The field studies were conducted in autumn after the grazing season. The assessment esteemed the level of vegetation left on the pastures and the level of encroachment. We used a

scale ranging from “strong underused” up to “strong overused” to measure the utilisation intensity. “Underused” means that the pastures are not fully exploited and that encroachment of bushes and trees occur on the parcels and can be problematic. “Overused” on the opposite refers to parcels where grazing guides to deterioration or erosion and where the resource may have problem to regenerate. No case of “overused” were however noticed during the field studies so that the scale on Fig. 3 indicates only the level from “strong undergrazed” up to “well grazed”. “Well grazed” refers to parcels where pastoral productivity is namely exploited but do not impair the sustainability of the pastures. The results of the field studies are inserted with colour on the grazing intensity scale (see Fig. 3).

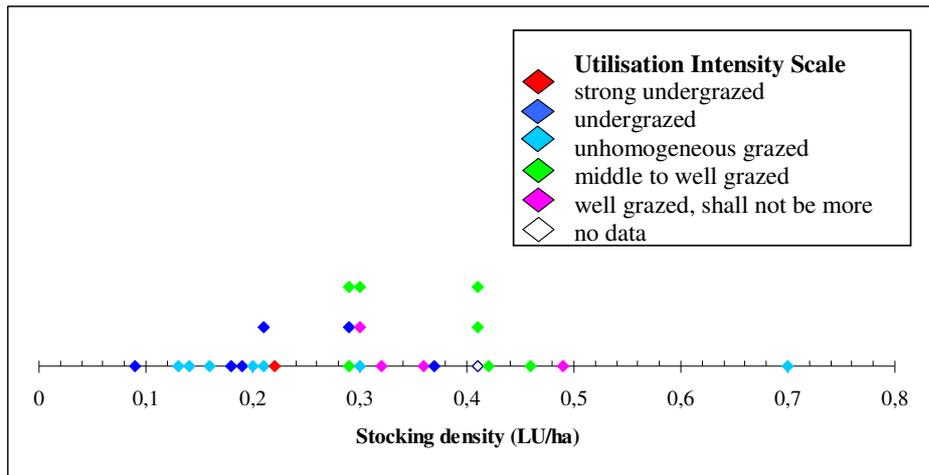


Fig. 3: level of utilisation of the collective alps (n=26)

Altogether we found a total of 14 collective alps where the pastoral resource appears to be not fully exploited. Eleven of the investigated collective alps present a relatively good utilisation of the pastoral resource.

The utilisation of the resource can be more or less splitted among two groups. Under 0,25 LU/ha the utilisation intensity of the collective alps ranges from “strong undergrazed” to “unhomogeneous grazed”. It is globally under-exploited. Above 0,25 LU/ha the collective alps seems generally to be better used. It is also interesting to notice that collective alps with the same stocking density present different utilisation intensity. For instance with a stocking density of 0,3 LU/ha some of the collective alps are well grazed whereas others are undergrazed. Reversely collective alps with same utilisation intensity may have totally different stocking density. For example the collective alp with the highest stocking density (0,7 LU/ha) is in the same manner under-exploited as some with a stocking density under 0,25

LU/ha. These differences are almost due to altitude (lowland and upland) and orientation (e.g. South, North exposition) which have an influence on the grassland productivity.

3.2 Organization and structure of the community

“The term *organization* refers to a set of actors (groups of individuals) who cooperate or act jointly by some common purpose to achieve objectives” (AUZINS 2003 p.3).

This section concentrates on the description of the collective alps as organization i.e. on the stakeholders involved.

3.2.1 Characteristics of the good in the glance of the community

OSTROM ET AL (1994 p.7) consider two variables to classify the goods: excludability and rivalry. These two variables give information on the possibility for potential individuals to benefit the good and on the subtractability of the good when consumed by potential users. These two variables have impact on the incentives of the actors to manage the resources. According to the classification of OSTROM ET AL (1994) the pastoral resource of the collective alps could be assigned on a scale situated between *common pool resource* and *toll good* (Fig. 4).

		Subtractability of the individual benefits	
		High	Low
Exclusion of potential beneficiaries	Easy	Private goods	Toll goods (= club goods)
	Difficult	Common-pool resources	Public goods

Fig. 4: Classification of goods (based on OSTROM ET AL. 1994 p.7)

The utilisation of the pastoral resource is restricted to a defined group of people. Earlier these groups were larger, they encompassed generally a whole community. Currently these groups are reduced only to persons continuing the farming activities. The variability of the type of good lies also in the rivalry. In some of the cooperative alps rivalry among the users of the resource is almost inexistent. In others it is more acute. However all in all rivalry is currently not very exquisite since favour is gladly cared to land in the valley as on the alps. It should be born in mind that this classification does not reflect the physical property of the resource but lies more on the profitability for the actors to exploit the resource. In the past the competition for the resource appeared to be much stronger as it is nowadays and the good tended more to be *common-pool resources*. Nowadays it tends toward *toll goods*. The classification of the collective alps is altering over time according to the changing socio-economic and technological setting.

3.2.2 Stakeholders

3.2.2.1 Land ownership and legal form

The land property can be grouped in three categories: collective, public (either the state, the forest agency or the commune) and private. In more than 40% of the cases the collective alps as legal entities own the land themselves (Tab. 6). Nevertheless when considering the acreage, the largest extent of the land is in public ownership. This is due to the fact that vast areas of the alpine forest pastures are under the domain of the Bavarian state. Land under private property is on the one hand owned by one or several persons who make the land available for grazing purpose. On the other hand it can be in private property of the users who exploit it collectively.

Tab. 5: Landownership and legal form (n=26)

Landownership	Legal form	Number of collective alps	Classification (see Tab. 6)
Collective alps	registered cooperative	5	1
	registered association	2	
	kingship accreditation	1	
	public corporation	1	
	relic association form	1	
	relic cooperative form	1	
Commune	registered cooperative	1	3
	registered association	1	
Forest agency	no legal status, public land ownership and personalised utilisation rights	3	4
	registered cooperative	1	3
	entitlement alps	1	5
State	registered cooperative	1	3
	entitlement alps	1	5
Fractional property	no legal status, private property of the land	5	2
Private person	no legal status, cooperative relic form	1	6

The registered cooperative form is the most common legal form found among the collective alps (8 collective alps). Apart an important share of the collective alps does not have any registered legal form (35%). To identify the difference and similarities between the collective alps without legal status, we sort out the different type of entitlement to the land. They can be classified into three distinct groups. In the first the land is in the private property of the users (Fractional property). The second group the land is in the ownership of the forest office and the users have a personalised utilisation rights accredited through the ownership of a farmstead. In the last case the organization is a relic form of a cooperative with collective entitlements.

According to the land ownership and the legal form we distinguished six different types⁴ of collective alps surveyed in the Bavarian alpine region (Tab. 6).

Tab. 6: Classification of the collective alps (n=26)

Class.	Mention of the collective alps	% of number of collective alps
1	Alps/pastures in the ownership of and organised in a cooperative/association form	42%
2	Community alps/pastures (<i>Bruchteilseigentum</i>): the land is under fractional property where each owner manage on its own a fraction of the land	19%
3	Alps/pastures in the ownership of municipality, land of Bavaria or agency (e.g. forest). The alps are organized in a cooperative/association form.	15%
4	Alps/pastures in the ownership of the forest agency. Often the land is leased to users of the alps/pastures; no legal form are found	12%
5	Entitlement alps/pastures (<i>Berechtigungsalps</i>): the land belongs to the land of Bavaria or others (e.g. forest agency) but encompass grazing rights. Often several entitled users share up the rights between themselves.	8%
6	Alps/pastures in the ownership of one private person. The land is leased to a cooperative/association organization (relic cooperative)	4%

A majority of the surveyed collective alps (42%) are organised in a cooperative/association form and the land is in ownership of the organization. Also relatively frequently found are the collective alps with the land publicly owned and leased to farmers so as the collective alps under fractional ownership and management.

3.2.2.2 Users of the pastoral resource

The collective alps are used by different groups of persons. Among them we find the eligible participants of the collective pastures. For more clearness we will identify them as “members” in the following text. This group consists of persons who have a legal entitlement to exploit the resource. Some of them however do not exploit their legal entitlement. They are classified as passive members. They may use ancillary rights, such as wood collection or hunting. Active member are the ones using their grazing rights i.e. they are sending their animals on the collective alps.

One particularity is the presence of none-member as user of the resource. Though they have no entitlement, they are allowed to dispose their animals on the collective alps. They often may have to pay compensation for the service. The presence of none-member may reveal that in some of the collective alps the livestock of the active members is limited compared to the available acreage and would not suffice to exploit the entire resource.

⁴ in relation to the classification in (Englmaier et al. 1978 p.28)

Tab. 7: Number of persons involved in the collective alps (n=26)

Type of users	Total	Average	Median	75% Q.
Total number of members (persons with grazing rights)	1241	48	16	39
Thereof active (exploiting the grazing right)	465 (37%)	18	8	25
Thereof passive (not exploiting the grazing right)	776 (63%)	30	2,5	17
Total number of persons sending animals to the collective alps	668	26	10	26
Thereof not possessing a grazing right	203	8	0	0
Total number of persons involved in the collective alps	1444	56	9	54

Almost two thirds of all members are not using their grazing right (Tab. 7). 203 farmers board their animals on the various collective alps without having a formal grazing right. They constitute therefore nearly a third of the group of farmers who exploit the pastoral resource. However, they are present in only 6 of the 26 collective alps. On the other hand boarded animals can also be on the behalf of active members. The portion of boarded animals is therefore not directly related to the number of none-member.

The results, especially the ones concerning the average of the total number of members and the average share of passive members, have to be analysed with caution. Indeed, one collective alp has 378 passive and 54 active members. It accounts for nearly half the passive members of all collective alps. In this case the collective alp is in fact an ancillary activity. The collective organization is actually a breeders association and most members are chiefly interested in the breeding activities of the association. Fig. 5 gives a better appraisal of the repartition of the active/passive members in the collective alps.

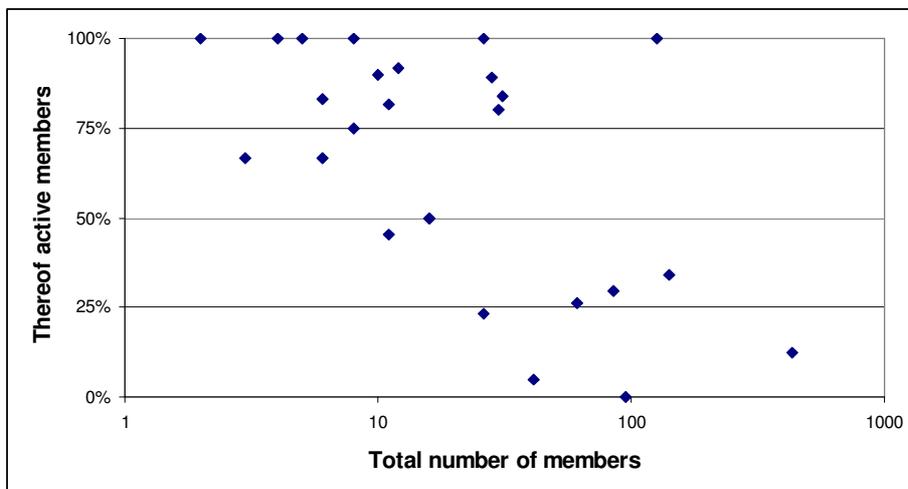


Fig. 5: Share of active members in relation to the total number of members in the collective alps (n=26)

The distribution of the active members compared to the total number of members among the collective alps points out that in half of the collective alps more than 75% of the members exploit their grazing right (Fig. 5). In one no members are active; the collective alps is only

grazed with boarded animals. According to Fig. 5 it seems that the higher the total number of members in the collective alp the lower the number of active members.

An interesting indicator which we also assessed is the number of active members 20 years ago. In comparison with today the number of active members decline of active members in the last decades of approximately 40% in 20 years (some 2% per year).

3.2.2.3 *Shepherds*

The shepherds are important stakeholders since they play a role in 85% of the collective alps (Tab. 8).

Tab. 8: presence and number of shepherds (n=26)

	Min.	Max.	Average	Median	75% Quantile
Number of shepherds	0	17	3	2	4,8

One collective alps counts in the mean around 3 shepherds. Only in 4 of the investigated collective alps no shepherds are required. In these ones, the duties are undertaken by the members. Usually the shepherds are employed under the regime of the collective alps. The presence of shepherd demonstrates among other that the members are acting and making decision on a collective basis. However in two of them the employment is the responsibility of the individuals. This explains the maximum of 17 shepherds found in one collective organization. This one is a “dairy alp” where cheese products are individually performed.

Others stakeholders play a role in the regulation and management of the collective alps. In a certain way local population and tourism and public authorities contribute through social, cultural or economic encouragement to the maintenance of the collective alps. Regarding the type of goods, these stakeholders are somehow more involved in the benefit of the collective alps as cultural, aesthetic and recreational value than as a fodder resource. For this reason we will not deepen the analysis of these stakeholders. Only public authorities in the meaning of bodies promoting directly or indirectly agricultural activities on the alps will be mentioned in the next part (see section 3.3.3.7 External regulation bodies).

3.3 **Property rights and resource regime**

A “resource regime” is the institutional structure established to regulate resource use. It can take a variety of form such as a set of rules concerning transactions over the results from the use of the resource (VATN 2005 p.252). The collective alps have a regime of property rights. This regime governs the access to the resource.

Regime or institutions consists of conventions, norms and formal rules (VATN 2005 p.284).

3.3.1 Terms of reference

3.3.1.1 Property rights

Property right means to have the ownership of a right to specific resource or benefit streams. Having a property right on a natural resource does not imply obligatory full ownership on the resource. Bundle of rights are found to operate over a resource. Property rights can be classified in five classes: right of access, right of withdrawal, right of management, right of exclusion, and right of alienation (HIDAYAT 2005 p.41). Each situation is allocated one or more of these specific rights. The access and withdrawal rights are grouped into “use rights” whereas the three others are aggregated into “control rights”.

3.3.1.2 Property regimes

“A property regime is the structure of rights and duties characterizing the relationships between individuals with respect to a specific good or benefit stream” (VATN 2005 p.255). “In the literature it is common to differentiate between four different property regimes:

- private property;
- common property;
- state (public) property; and
- open access”(VATN 2005 p.255)

However these “defined property regimes are rather broad categories encompassing a variety of forms” (VATN 2005 p.257). To distinguish them it is better to concentrate on “*the type of relationship among the co-owners*” (VATN 2005 p.258). So the variety of form lies very much on the specific property rights allocated to the resource which make varying the relation between the participants. This could mean that a property regime of a resource could be different when considering the different rights allocated to the users. As already mentioned we define the collective alps as jointly used rough pastures. This means that we concentrate especially on the right to use the resource. In this sense we can argue that the collective alps are common property since they are all used by defined group of person in a common consensus. The right to use the resource jointly is a common characteristic among all collective alps. A common property regime is attributed to resources that are “managed by a defined group of people” (HIDAYAT 2005 p.45). In our case if we consider the management, differences occur between the collective alps. For instance the registered cooperatives tend to be managed on a collective basis whereas the ones under fractional property as more or less individually managed. The same counts concerning the entitlement as we will see it below.

In fact the analyse of the 26 collective alps will reveal a high variability between the organization. This lies in the difference of the allocated rights on the one side but also on the resource regime on the other.

3.3.1.3 Resource regime

Resource regime encompass the property rights and property regime so as the other rules (conventions, norms, informal rules) that govern the use of the resource.

3.3.2 Property right regimes of the collective alps

We notice during the interviews that the expression “using right” arouse lot of insinuations among the interviewees. With regard to the difficulty to explain the concept of property right on behalf of literature; during field studies the concept does not cover a proper signification. It was not understood in the sole meaning of right and regime as described above. Rather it was bounded to others aspects like the conditions under which they are hold, the way they are transferred or allocated to the members, the entitlement they encompass and also what happens when they are given away. Moreover there exists also a difference between who own the rights and who use them. For easier depicting of all related insinuation to the property right concept in the case of the collective alps we represent them in the figure below (Fig. 6).

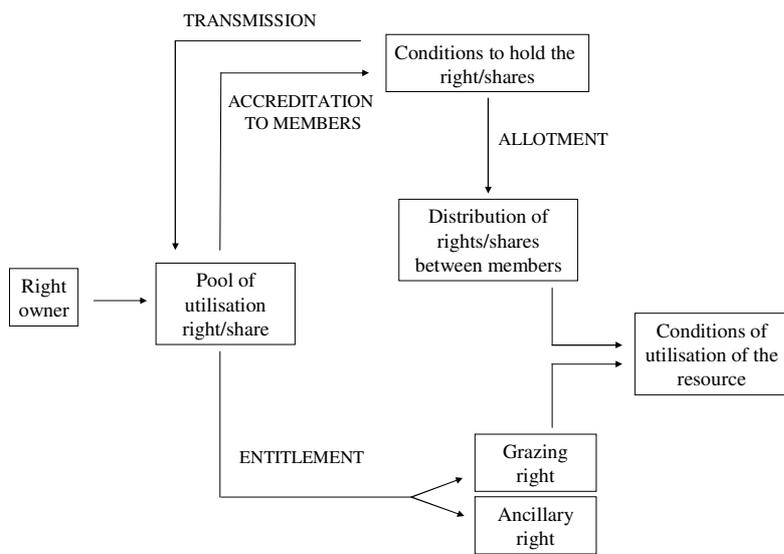


Fig. 6: Property right and related aspects

Source: Author’s own designed figure

The following section will depict the different components of the figure. It appears that a high level of combination exists among the collective alps as each component has several issues making the collective alps very different among each others.

3.3.2.1 Rights owner

We asked the interviewees about who owns the right to use the resource (Fig. 7). It appears that in most of the cases (58%) the collective alp entity is the owner of the right. In 23% it is owned by the members themselves and in 19% the right (in this case share) belongs to the fractional properties.

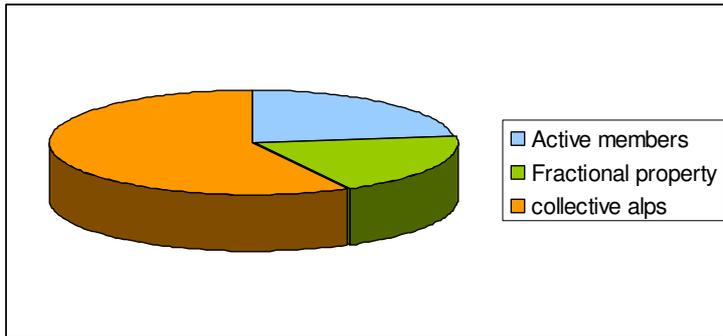


Fig. 7: Right owners (n=26)

This shows that in 58% of the collective alps the right owners are different to the right “users”. The latter are the members of the collective alps. In these cases the rights are somehow redistributed to the members.

3.3.2.2 Accreditation

The following analyses the conditions of accreditation of holding the right to use the collective alps i.e. the conditions that allow the members to hold rights. Accreditation complies with the right of access according to Hidayat (2005 p.41).

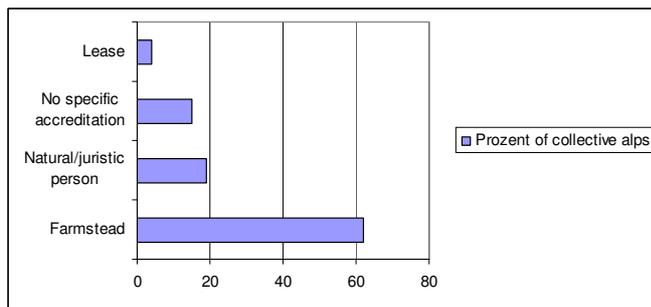


Fig. 8: Accreditation of the rights (n=26)

In 62% of the collective alps the accreditation is bound to the farmstead. This means that to be attributed a right one has to possess a farm property entitled with a right. In 19% of the cases

the accreditation of the rights is bound to the natural person. These rights are allocated to a specific person. In 15% of the surveyed collective alps there is no specific right accreditation, but the membership is based on formal or informal contracts between the organization and its members. Finally, in one case the rights are leased, i.e. in order to be a member of the collective alps the member has to pay a fee (often an annual retribution) to the land owner.

3.3.2.3 Allotment of the rights/shares

The following analyses the allotment of the rights to the members. We understand with allotment the way the utilisation right is distributed among the members. We distinguish among the collective alps three different kind of allotment of the grazing rights (Tab. 9).

Tab. 9: Allocation and disposition of the grazing rights (n=26)

Mode of rights/shares allotment to the members	Number of collective alps
Allotment with defined entitlement: members are entitled to graze a designated number of	
Animals	4
Livestock unit or Grazing season animal unit ¹⁾	9
Allotment without defined entitlement	
Rights are split up between the members	3
Registered rights according to the farmstead	1
No allotment	
A sole collective right, no individual allotment	5
Membership caters for the utilisation of the resource	3
Individual arbitration about the number of grazing animals	1

1) One grazing season animal unit (Normalkuhgras): Amount of fodder a dairy cow needs for a period of 100 days. Other types of livestock are converted to a grazing season animal unit based on their forage demand.

In the first, the individual member holds an entitlement to send a designated number of animals or grazing season animal units to the pastures. This number can be unevenly shared among the members of the same collective alps. In the second, there are no specific defined entitlements for the disposition of animals. In three cases the capacity of the pastures is splitted among the members. Each of them is entitled to send its share to the collective pastures. In one case the allotment of the rights is bound to the farmstead. This occurs although the members of this organization do not activate any more the rights on their own. At last, in the third case no rights or shares allotment occurs. In five cases the collective organization disposes of a sole collective “right entity”. In another three cases the registered membership constitutes the grant to let animals graze on the pastures. In one collective alp, the members act individually and decide on their own about the number of animals they intend to let grazing. In this case each user owns a specific part or share that he can freely dispose of (even then rules may exist defining restrictions on this freedom). On the opposite,

in the others cases rights or shares on the resource are not individually owned but collectively. The resource is granted the members to use the pasture according to internal rules.

In the case of allotment without defined entitlement, often specific contracts are concluded between the collective organization and the members or between the members themselves. These contracts define the conditions of allocation of the rights/shares. All in all in 12 collective alps utilisation rights are equally split up between the members either through allotment or through specific contracts.

Allotment meets in some extent the right of withdrawal, of exclusion and of management according to Hidayat (2005 p.41). For instance the right of withdrawal gives the users the “authority to harvest resource units at a certain location or to use a special technology” (Hidayat 2005 p.41). The number of animals a member is allowed to send on the collective pastures may suit to the rights of withdrawal and management. An example of exclusion is when it is stipulated that only members who pay the fees can use the resource.

In spite of accreditation and allotment of rights/shares to use the resource, boarded animals are found in 62% of the collective alps. This occurs in two different manners. Either animals are being boarded to the members who send them graze on the pastures. Or external farmers without entitlement are encouraged to let graze their animals on the collective pastures.

3.3.2.4 Entitlement of the rights

Entitlement can be according to the collective alps of different nature. Nevertheless the main and common entitlement found among the collective alps is the right to use the resource for grazing activities. Other entitlements such as mowing the grass for forage production or wood collection also exist in some of them for the same group of users.

3.3.2.4.1 Grazing right

The degree of utilisation of the grazing rights was difficult to assess since as presented in Tab. 9 the right “entity” is very different according to the collective organization. In some of them the utilisation of the resource is shared in a number of rights. In others, there are no rights but a defined number of members acting in the organization. In the last it can be a defined number of animals. For this reason we asked the interviewees to make a relative appraisal of the current utilisation of the grazing rights (in number of rights or number of animals or number of active members) in comparison to the total capacity (total number of rights, total number of animals or total number of active members) of the collective alps.

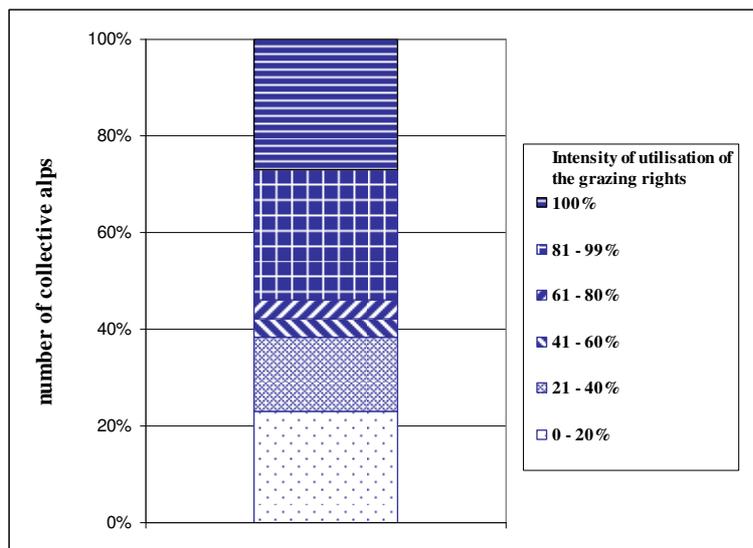


Fig. 9: Intensity of utilisation of the grazing rights in the different collective alps (n=26)

The figure reveals that in almost 40% of the collective alps less than 40% of the grazing rights (number of rights, number of animals or number of active members) are used. On the opposite in 27% of the collective alps all the grazing rights are utilized.

3.3.2.4.2 Ancillary rights

Some of the collective alps bequeathed others rights for the members beside the one to graze on the pastures. The more commonly found are wood collection and hunting and in a smaller extent collecting litter or the utilisation of water well. Ancillary rights are found in 92% of the collective alps.

Tab. 10: Type and proportion of ancillary rights (n=26)

Ancillary rights	% of collective alps
Wood collection	63%
Hunting	25%
Litter collection	8%
Others e.g. use of well	4%
<i>Total collective alps with ancillary rights (%)</i>	<i>92%</i>

We could not assess quantitatively the degree of utilisation of these rights. However on average all the interviewees admit that their utilisation remains nowadays insignificant. The right to hunt is often leased to hunting societies and the wood collection serves often more the profit of the collective organization as the individual members.

3.3.2.5 Transmission of the right

In this section we want to know how are the rights transmitted between users, to the next generation or what happen when a member retire from the collective organization (Fig. 10).

Transmission complies with the right of alienation according to Hidayat (2005 p.42).

In most of the CLS there is more than only one way of transmission possible.

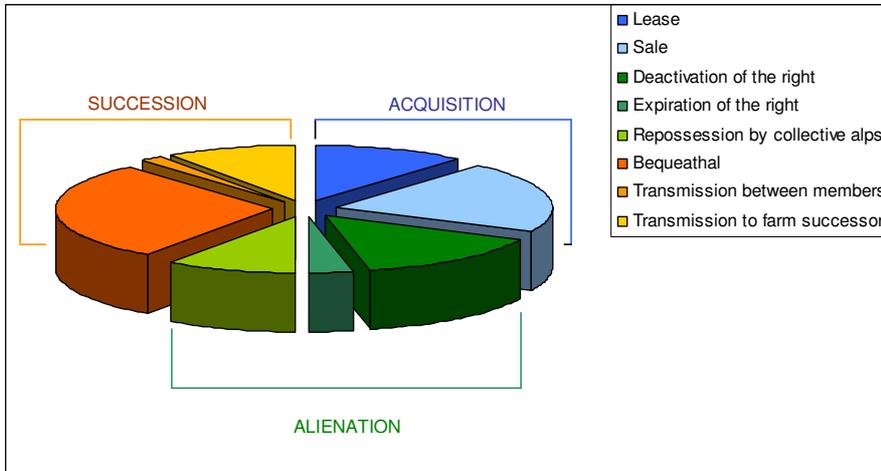


Fig. 10: Transmission of the rights (number of answers = 62)

We found 8 different ways among the interviewees to transmit the rights. We could group them into three sub-categories according to their similarities: succession, acquisition and alienation.

Succession means that the rights are transmitted to members in a certain way. It aggregates the transmission through heritage to the descendant of the rights holders, through transmission between members of the same collective alps or through transmission to the person who succeed and continue farming activity with agreement of the collective alps.

Acquisition signifies that to profit from additional rights a member has to bargain for it. It gathers the transmission of rights through leasing or sale to other members.

Alienation means that the right expired in a certain way when not used any more or abandon by a member. It contains the case where right are deactivated when a member does not want to use them further. However they can be later on re-activated. They can expire when a member retire from the collective alp or abandon the land. In the last case alienation can occur after abandonment by a member when the rights are re-assigned to the collective alps.

Succession gathered the most frequent way of transmission especially holds from heritage between the generations (29%). Sale of the right is also frequent as it occurs in some 21% of the cases.

Usually in the literature it is found that in common property regimes the users are not allowed to trade their right/share that they own on the resource (VATN 2005 p.258). In our case sale is found in 4 of the 6 different collective alps (see Tab. 6). Three of the five collective alps under fractional properties have sale mode of transmission but also cooperative alps, entitlements and forest-owned alps with leasing.

According to the definition formal rights are usually enforced by centralized bodies, whereas informal rights are maintained by decentralized enforcement (HIDAYAT 2005 p.38). In our sample it seems that most of the property rights are informal ones. They are agreed, managed and enforced by the collective organization, even when the land is in ownership of official authorities.

3.3.3 Duties, rules and governance

HIDAYAT (2005 p.40) supplied in his book a good overview of the concepts of rules and duties: “Rights possessed by individuals are meaningless without an authority system to enforce them. One’s rights over a thing require one’s counterparts to respect those rights. In other words, people have the duty to respect the rights of others. In order to enforce these rights, a system of rules is needed that can force individuals to perform their duties with respect the rights of others”. More precisely, rules define the “actions [which] are required, prohibited or permitted, and the sanctions authorized if the rules are not followed” (HIDAYAT 2005 p.39).

Governance is an overall concept. It signifies “all the rules and mechanisms of enforcement that guide and coordinate people’s behaviour with regard to a concerted outcome” (FISCHER ET AL. 2004 p.4).

3.3.3.1 Commitments and duties

Under commitments and duties we mean the obligations people have to achieve according to the rule system. Tab. 11 presents the duties to accomplish on the collective alps and the persons involved in these duties. We consider here in addition to the users also other persons taking part in the duties in order to better highlight the tasks accomplished by the users.

“Employed persons” are mainly shepherds and under “assigned persons” we mean stakeholders who are non-members but are assigned some activities.

Tab. 11: Duties of stakeholders towards the collective alps (n=26)

Labour accomplishment	Herd monitoring	Pasture maintenance	Maintenance of the site	Total
Members (against w. c.)	18%	18%	35%	20%
Collective accomplishment (without w.c.)	27%	14%	38%	20%
Employed person	51%	13%	19%	23%
Assigned person (without w. c.)	4%	2%	4%	3%
Not conducted	0%	52%	4%	33%

w.c.: wage compensation

Herd monitoring regroups the activities of rising and dismantling the fences and watching and supervising the herd. Pasture maintenance regroups the application of fertilizer and pesticide, mowing, mulching and clearing the young trees. Maintenance of the site concerns all activities maintaining the ways and roads, drainage and buildings.

Tab. 11 depicts very distinct results. Herd monitoring is mainly accomplished by employed persons. Members of the collective alps have also an important share for the fulfilment of this task either with or without financial retribution. Maintenance of the site is predominantly performed by the members where in half of the cases the labour is remunerated. On the opposite pasture maintenance is in half of the cases not conducted. Clearing of young trees is the most frequently duty and is mostly accomplished by the members (as individual or collective duty).

Generally when we carry on the calculation without considering the proportion of non-accomplishment, the members labour account for 61% of the tasks, and employed persons for 35%.

3.3.3.2 Intern organization of the collective alps

3.3.3.2.1 Constitution

We asked the interviewees if the collective alps run a constitution respectively based under written rules. From 26 collectives alps 19 of them have a constitution and 5 do not have any. The characteristics of the latter are the low number of users involve in the alps. They all have five or less participants. They belong also to the collective alps without board of management. The setting up of constitution has been among others motivated in the 60's since it was a condition for the allocation of premium for instance for investment in equipments like drainage (SCHOLZ ET AL. 2003).

3.3.3.2.2 Organization of the board of management

Following data concerning the organization of the board of management have been gathered and are presented in Tab. 12 below.

Tab. 12: Intern organization (n=21)

Characteristics of the intern organization	Value (part of collective alps)
Members in management board	Average: 4,5 ; Median : 4 (Min:1 ; Max:9)
Election of the management board	Vote: 95% Rotation: 5%
Election of the 1 st Chairperson	Rotation: 71% Vote: 29%
Vote rating	One vote per person: 86% Dependent to number of rights: 14%
Frequency of collective meeting	Every year: 95% If required: 5%

Excluding the five collective alps where no constitution and therefore no management board are present, the management board are composed on average of 4,5 members, this number varies from 1 to 9. In 95% of the cases, the management board is build up by vote and in 5% on rotation. A Chairperson is present in each of the collective alps. In most of the cases rotation is carried out for plumping for the Chairperson. In most of the collective alps the vote rating is “democratic” since one vote count per person. The frequency of collective meeting is relatively high since in 95% of the cases it takes place every year. Fig. 11 depicts the intensity of participation of the members to the collective meeting. This one is relatively spread over the scale. However in 54% of the cases the participation is over 80%.

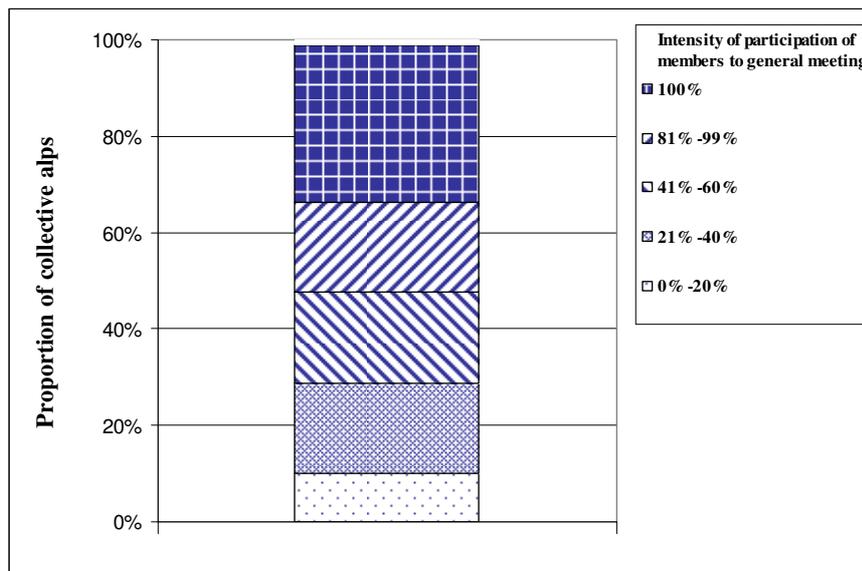


Fig. 11: Intensity of participation of the members to the general meeting (n=26)

3.3.3.3 Rules

Information about the kind of existing rules was recorded from the representatives of the collective alps. In a general matter the rules we found among the collective alps concern the aspects of labour, finance, herd and pasture management.

As reported by the gathered data it was not possible to differentiate the formality of the rules. According to the definition, formal rules are the ones which are codified, issued by law whereas informal rules are unwritten and customary. However taking into account the persons who devise or decide the rules we cluster the rules into formal vs. informal according to the authoritative degree of establishing the rules. In this way we considered under formal rules the ones devise and decide by extern institution (i.e landowner, Forestry agency), the Chairperson, the Management board, and during the General meeting (members incl. management board, chairperson). Informal rules are the ones accomplished by the shepherd or other assigned persons, the Alpine foreman and individual and which does not need official agreement.

We tried as well to classify the rules according to the level of regulation. “The institutional arrangements can be subdivided into several attributes: operational rules for governing resource use, collective-choice rules for determining, enforcing and altering operational rules, and organizational authority relationships” (ICLARM 1996 p.5). The latter are also called constitutional-choice rules. They concern the rules establish by external bodies like national institution and are not the subject of this section.

Tab. 13 presents the kind of rules found in the different collective alps (only the alps with board of management are considered i.e. n=21).

Tab. 13: Type and proportion of formal and informal rules in the different collective alps (n=21)

Type of rules	„Formal“ rules	„Informal“ rules
Operational rules		
date and extent of pasture maintenance	52%	48%
date of fencing/dismantling	38%	62%
Fertilizer application	33%	67%
Number of animals allowed to graze	71%	29%
Drive up and bring down the animals to/from the pastures	38%	62%
Way of managing the herd	38%	62%
Way of managing the pasture	25%	75%
Collective-choice rules		
Compensation of labour performed on the collective alps	100%	0%
Date of collective assignment	56%	44%
Extent and object of investments	90%	10%
Extent of labour to provide on the collective alps	60%	40%
Grazing fees	87%	13%
Level of wage compensation	100%	0%
utilisation of money from subsidies	75%	25%
Utilisation of possible surpluses	100%	0%
Total	62%	38%

Generally the formal rules concern the financial aspects, the way of pastoral management like stocking density, plot size, grazing seasons and the joint work on the pastures. The informal

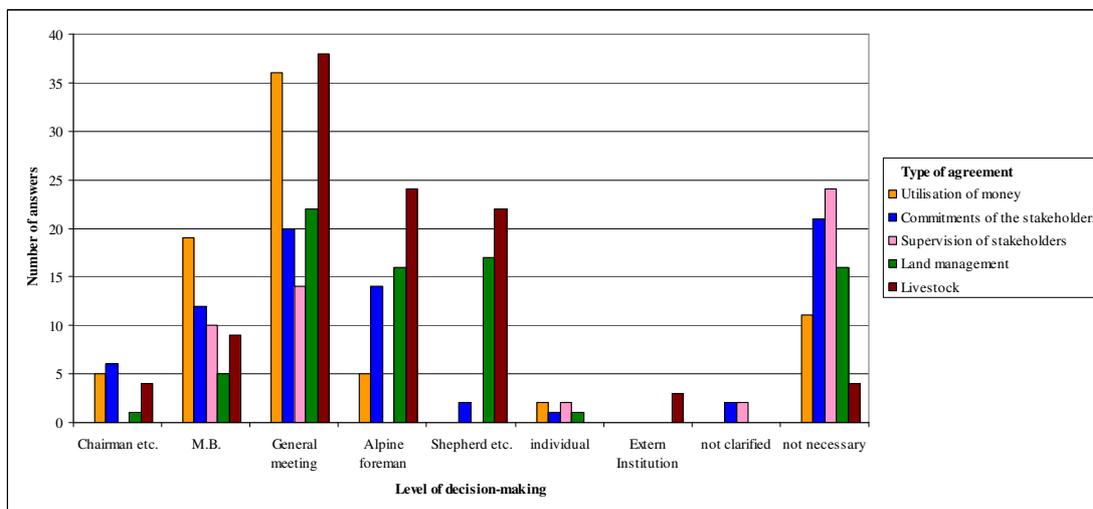
rules devise the herd management and pasture maintenance. Formal rules are in the mean more frequent as informal rules. It appears also that most of formal rules contain collective-choice rules and inversely most of informal rules include the operational ones.

In the five collective alps without board of management the previous rules are all informal and agreed between the active members.

3.3.3.4 Level of decision-making

The level of decision-making indicates who is participating in the decision-making, who steps in which decision, which agreements are concerted and how are the decisions stipulating. The level of decision-making informs about the participatory forms of decision making.

Fig. 12 depicts the part of participation of different bodies in the decision making (horizontal axis) and the type of decision agreed upon (vertical axis). The shapes and contrasts indicate the degree of intervention one body has in one type of decision.



Labelling of decision level: 1st Chairperson or managing director; Management board (M.B.); General meeting embraces the members including or not the management board and chairperson; Alpine foreman; Shepherd or assigned person; Every man for himself (individual); Extern Institution (i.e landowner, Forestry agency); the decision level is not clarified; the decision level is not necessary.

Labelling of Agreement: Following decisions are making under the different agreement level: Livestock: date of fencing/dismantling, Number of animals allowed to graze, Turning out to pastures, Way of managing the herd. Land management: date and extent of pasture maintenance, Fertilizer application, Way of managing the pasture. Supervision of the stakeholders: Sanction, Compensation of labour performed on the collective alps, Level of wage compensation. Commitments of the stakeholders: date of collective assignment, Extent of labour to provide on the collective alps, grazing fees. Utilisation of the money: Extent and object of investments, utilisation of money from subsidies, Utilisation of possible surpluses.

Fig. 12: Level of decision-making and type of agreement (n=26)

Fig. 12 draws several facts. First it shows globally which decision level has some importance in the whole decision process. It seems that the Chairman, the individuals and the extern institutions have low relevance in making decisions. On the other side the General meeting,

the Management board and the Alpine foreman pertain to the entities with the highest decision participation. The figure points out also that in many cases the necessity for decision is not relevant. This is to find especially concerning supervision and to a lower extent commitments of the stakeholders. On the opposite it shows which agreements are agreed on by a majority of decision bodies outweighing those ones in comparison to the others. For example agreements about livestock, land management and commitments of the members are the most frequently agreed by different bodies. Finally this figure shows also for each decision-level which agreement has the most significance. For instance utilisation of money is mostly decided by the General meeting.

Tab. 14 acquaints about the manner the decisions are agreed concerning three main decision levels, at the instance of labour, financial conditions and management of the herd and pasture.

Tab. 14: How are the decision agreed (n=26)

how are the decision met	Labour	Financial conditions	Herd / pasture management	Total
Consensus	76%	48%	68%	62%
Majority decision	12%	36%	12%	19%
"Who manage decide"	12%	12%	20%	14%
Employee	4%	4%	4%	4%
Total	100%	100%	100%	100%

In most of the cases the decisions are agreed on consensus between the persons involved in the decision-making. Concerning the financial conditions majority decision occurs also frequently.

3.3.3.5 Monitoring and sanctioning

GIBSON ET AL (2003) demonstrated that the condition for successful resource management results from rules enforcement i.e. regular monitoring and sanctioning. This condition seems to belong to the more important at all, "it dominates *all other factors*" argue the authors (GIBSON ET AL. 2003 p.4).

Tab. 15 presents the bodies monitoring the enforcement of rules in the different collective alps.

Tab. 15: Monitoring body of rules and decisions enforcement (number of answers=26)

Monitoring body	% of collective alps
Management board	19%
Extern Institution (i.e landowner, Forest agency)	19%
Members	12%
1st Chairperson	4%
Not clarified	8%
Not necessary	38%

In most of the cases monitoring is fulfilled by the Management board, extern bodies and to a lower extent by the members themselves. It is interesting that in 38% of the collective alps the representatives pretended that monitoring is not necessary at all.

The assignment of monitoring bodies is to control the users over the utilisation of the resource and participation in the compulsory tasks. Sanctions are penalties distributed to users when they infringe the rules. Their main role is to have a discouraging effect on the potential free-riding behaviour of the users.

Tab. 16 depicts the kind of sanctions find among the collective alps.

Tab. 16: Type of sanctions (number of answers=30)

Sanction	% of collective alps
None	53%
Warning/dissuasion	23%
Others	10%
Exclusion	7%
Financial penalty	7%

Others: Animals not allowed to graze any more, loss of ancillary rights or social pressure. The last two are additional sanctions to the Warning/dissuasion one in two collective alps

In most of them (over the half) no sanction are stipulated. Either because there is no control body or because breaking the rules rarely happens. The representatives of collective alps often even could not relate any occurrence of sanctioning. In 23% of the cases problem of free-riding are settled through a warning or dissuasion where the free-rider has to ensure a low penalty or through elocution.

3.3.3.6 Conflicts

3.3.3.6.1 Intern conflicts

Generally the emergence of conflicts seems to be rare. The representatives of the collective alps did not mentioned any kind of collaboration problems between the active members. Some problems may exist between active and passive members but they are normally solved on a good basis. In two cases the conflicts between these two groups is meaningful regarding the distribution of financial costs and surpluses and labour duties. It is interesting to notice that in both cases only one passive member is present. In the first one, conflicts also arise between the active members for similar reasons together with problem of pasture management. According to the representatives the lack of formal written rules might be responsible for the occurrence of the problem. There it seems that solutions are hardly fixed. In the second alp written formal rules are present. So the problem lies elsewhere maybe in the fact that no rules exist concerning the presence of passive members. The problem is so far solved under agreement of the general meeting.

3.3.3.6.2 Exchange relationship

Problem of cooperation with authorities and external bodies was noticed in 9 of the 26 collectives alps. Problems occurred with nature conservancy agencies, forest agency or agriculture administration. In most of the cases problems seem not to be really serious for the viability of the collective alps. Conflicts occur due to the requirements of, for example, the nature conservancy agencies towards the pasture management or construction of alpine roads. Complexity of administrative tasks for example for profiting from financial support or problem to find competent persons related to alpine farming in the administrative offices brings often scepticism to the users. The more serious problem occurred with the forest agency due to diverging interests for the same ground. This will be detailed explain in section 3.3.3.7.

3.3.3.7 External regulation bodies

Influences of authorities as well as general agricultural regulation on the systems are beyond the scope of this section.

We could identify four main external bodies involved in the regulation and management of the collective alps. They are the alpine farming societies, the boards of agriculture and their up hierarchical organization, the Bavarian forest agency and the communes provided with collective alps.

3.3.3.7.1 Alpine farming societies (Almwirtschaftlicher Verein)

The alpine region dispose of two Alpine farming societies spread over the alpine range. Their main objectives are to defend the interests of the alpine farmers and alpine farming towards the authorities such as the Bavarian Agriculture Ministry, the districts and communes and in some extent the community. They are very appreciated from the alpine farmers along with the users of the collective alps for their engagements and performances and the collaboration is very good.

3.3.3.7.2 Agricultural authorities

The boards of agriculture are more or less directly in contact with the alpine farmers. They are the representatives of the German and Bavarian Agriculture Ministry towards the farmers. They are among others responsible for the implementation of the regulations such as the new consideration of the European CAP-Reform (Common Agricultural Policy) and also of the Bavarian agro-environmental measures (KULAP: KULTurLandschaftsProgram). For the collective alps these boards are important for the claim and allowance of the compensatory

payments, the KULAP-premiums and the nature conservation premiums. The collaboration with the alpine farmers is achieved on a good basis of information exchange.

The alpine farmers are even represented at the Bavarian Agriculture Ministry since one department attend to Alpine Agriculture. Moreover the representatives of the Agriculture Ministry demonstrate interests to the alpine farmers by participating yearly to the Bavarian alpine excursion organised by the alpine farmers and alpine farming societies.

3.3.3.7.3 Forest agency

The Bavarian forests are managed by the Bavarian forest agency which is a self-supported body. It has the responsibility of the forest according to the forest law which implies that all trees over one meter have to be handled under this law (SCHOLZ ET AL. 2003). For this reason many conflicts occurred in the past century between the forest agency and the members of the collective alps since they couldn't dispose any more so easily of encroached areas. In order to break up the disputes between these two entities, in many districts the separation of forest and pasture has been implemented in the last decades. This action still generates conflicts between the pasture users and the forest administration because the area to split up overlaps the interests of both groups. Nevertheless the conflicts have considerably diminished.

In 2005 the Bavarian forests have been privatised. The consequences on the collective alps are still under consideration.

3.3.3.7.4 Municipality (Gemeinde)

The commune plays an important role especially concerning construction of roads for the opening of the alps. They often share together with the collective alps organization the costs.

The authorities are not directly involved in the management of the system. Prescription of organizational form and specific regulation on land management apart in case of tree encroachment are inherent to the collective alps. The degree of authorities involvement is significantly important considering support measures and incentive through financial support.

3.4 Financial situation of the collective alps

At least we would like to glance at the financial situation of the collective alps in order to judge of their profitability which act as incentive for the community to use the resource.

3.4.1 Revenues

Fig. 13 depicts the amount of revenues collected by the collective alps.

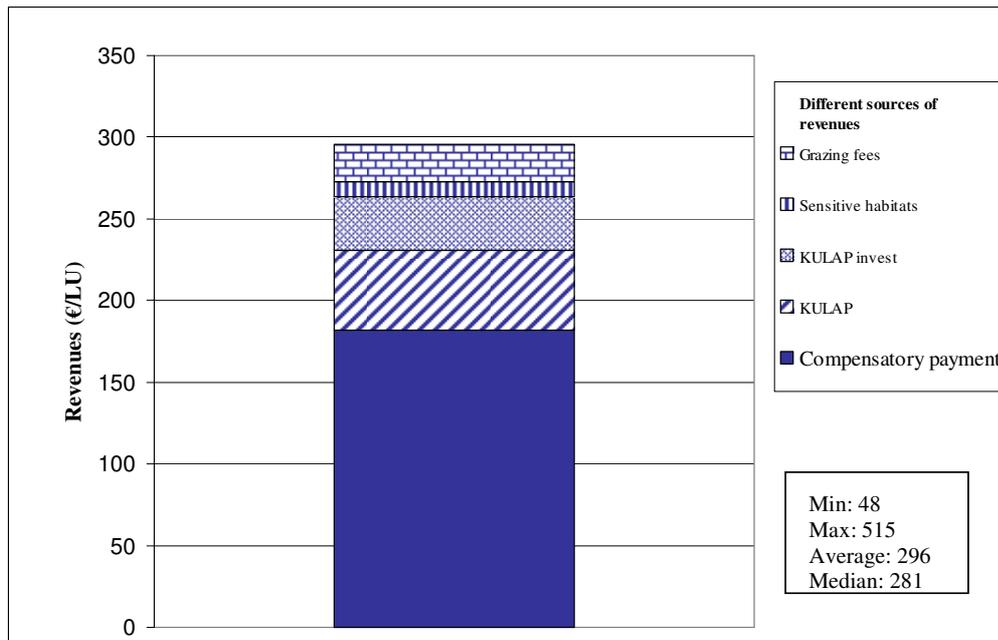


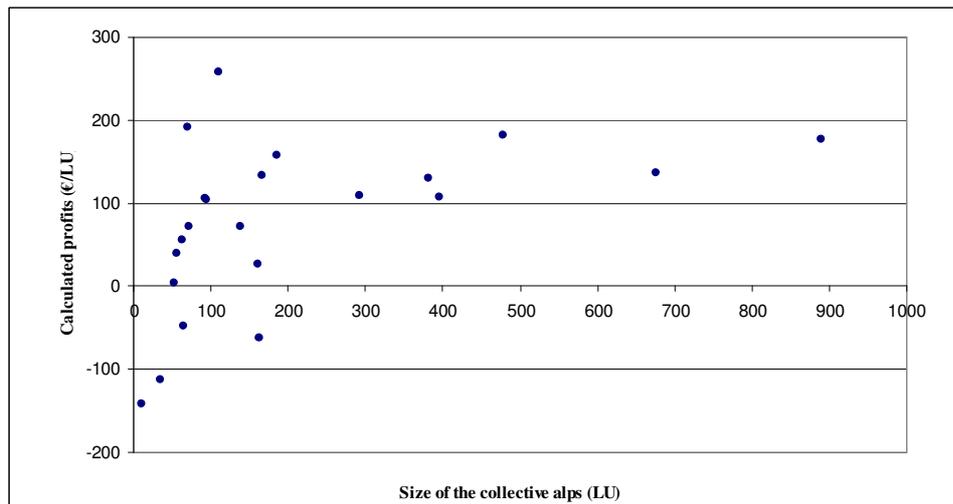
Fig. 13: Different sources of revenues of the collective alps in average (n=26)

In the mean premiums are the most important source of income. The alpine region of Upper Bavaria falls within the category of mountain farms and thus less favoured areas. For this reason they get the compensatory payments. Most of them are eligible to KULAP premiums (Bavarian agro-environmental measures). KULAP invest are specific measures to support investments on the alps such as equipment of shelter, fences etc.

The amount of compensatory payment attributed to collective alps unlike for farms and private alps do not have an upper limit. The latter cannot exceed an attribution of 16.000 €/farm. The subsidies to the collective alps are attributed according to their acreage. Grazing fees to be paid by the members are required only in eight collective alps (31%). Boarding fees are found in the majority of the joint pastures but they are generally of lower relevance. Reason for this is the decline of the number of animals which are sent to the alpine pasture. The collective alps therefore create an incentive system for the owners of boarding animals.

3.4.2 Profits

Taking away the costs from the revenues we could calculate the profits generated by the collective alps. The calculated profits are outlined in Fig. 14. The costs take into account the labour, the variable costs, the land tenure (when concerned) and the costs of maintenance of the site. In general, the most important costs are issue from labour which account for more than half of the total costs.



Profit= Revenues-[variable costs + labour* costs + land tenure costs + costs of maintenance of the site and fences]

*Labour is estimated with a cost of 10 € per hour.

Fig. 14: Calculated profits of the collective alps in relation to their size (n=26)

The figure shows that most collective alps are quite profitable. The calculations show losses for only four of them. We carried out a correlation calculation between the profit level and the utilisation intensity of the pastures in order to test if with increasing profits the utilisation of the pastures (section 3.1.2.3.3) is enhanced. The correlation coefficient shows a very low value ($R^2=0,0792$). This means that there is no correlation between the profits and the utilisation intensity of the resources. Interesting to note is the collective alp which has the lowest profit corresponds to the one with the lowest utilisation intensity of the pasture (refer to Fig. 3).

The representatives of the collective alps were asked about the utilisation of the profits. It reveals that in 46% of the collective alps the profits remain in the organization. In 54% they are dividing between the members (either according to the number of members, of right or of animal). We could imagine that the distribution of the profits among the members constitute a strong incentive to motivate them to use and manage the resource. To test this hypothesis we correlate the distribution of the profits with the utilisation intensity of the pastures (see Fig. 15). Fig. 15 presents the results of 25 collective alps, one alp is missing because of lack of data concerning the utilisation intensity.

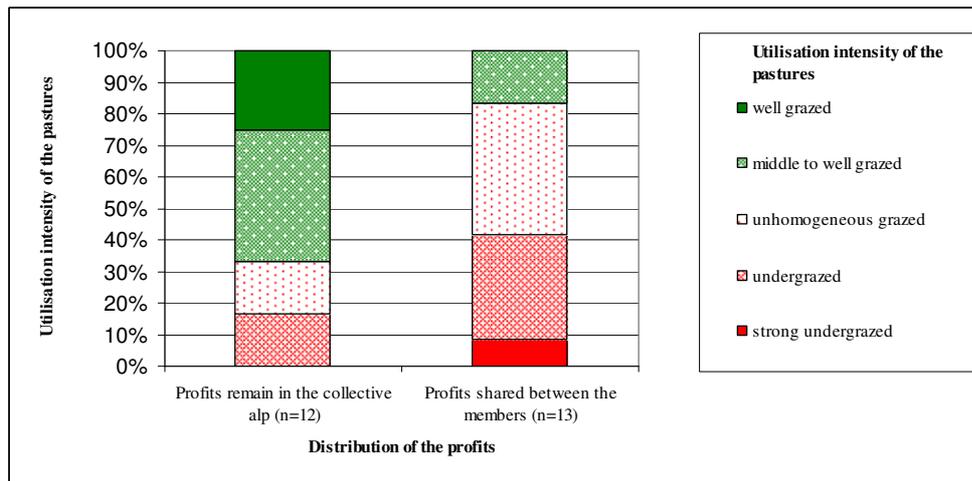


Fig. 15: Correlation between utilisation intensity and distribution of the profits (n=25)

However the results divulge that the pastures are better used when the profits remain in the organization.

4 DISCUSSION

The first aim of this paper was to draw a detailed description under institutional considerations of the collective alps in the German alpine region. The second objective is to produce an appraisal of the efficiency and potential problem of the collective alps in the region. Measuring the efficiency of organizations is not an easy task since it relies on lot of endogenous factors such as institutional arrangements within the group of users. We tried to measure it on behalf of two factors. We first have a look on the utilisation intensity of the pastoral resource which reflects the outcome of the interaction between the users. This was already carried out in section 3.1. The utilisation intensity indicates if the common property adjudicates an appropriate resource use. It highlighted that in none of the cases problem of overexploitation was detected, however in more than half of the collective alps the resources seemed to be underused in a way that might impair the efficiency of the pastures. Secondly we want to try to measure the endogenous factors through analysing the interactions between the main components presented in the GTZ framework (FISCHER ET AL. 2004) i.e. between the characteristics of the resource and the community, the property rights and regimes, the rules and governance. These results will enable us in this respect to evaluate the efficiency of the collective action among the collective alps. Collective action informs about the capacity of a group of people to conduct shares' goals. Collective action is improved through fair property

rights and governance system and enhanced through more intensive users' participatory in the decision making mechanisms.

When collective action is unbalanced within a community it leads to inappropriate resource utilisation where some users might exceed their benefit from the resource to the disadvantage of other ones. This often damages the sustainability of the resource. Unbalanced collective action is often fostered by incentive mechanisms that do not fit to each others. The following analysis of collective action will ascertain some of the reasons explaining the occurrence of under utilisation of the collective alps in the region.

As seen in section 3.2.1 the competition for the resource is not so acute. This explains why the classification of the "good" is moving from common-pool resource to toll good. The low level of profitability of the resource seems to act as "exclusion right". The relatively high portion of boarded animals (40%) reflects this trend. The collective alps seek for additional animals to maintain a certain stocking density on the pastures. Moreover the diminution or denial of grazing and boarding fees argues also in this way (see 3.4). Often in toll good users have to pay entrance fee which ensure exclusion (FISCHER ET AL. 2004 p.18). Among the collective alps entrance fee are more and more uncommon. Only 8 collective alps still claim it. This shows that the exclusion right is circumvented through abolition of entrance fee and introduction of boarded animals. It seems that the institutional arrangements do not match (any more!) the characteristics of the resource. We could also suppose that in some of the collective alps the rigidity of the access right leads to underused the resource. For instance in five collective alps boarded animals are not allowed. Moreover in some of the collective alps, though merest utilisation intensity, members who could send more animals on the alps are impeded because they do not own the corresponding amount of entitlements. The existence of property rights is important because they insure strong incentive for management of the resource on the one side. On the other it is important that they are adjusted to the situation or flexible when changes occur.

Rules and governance are also important because they monitor and enforce the respect of the users to the rights and resource uses. Property rights and rules when appropriated strengthen collective action and appropriate resource utilisation. However when rights are inappropriate one should expect that the corresponding rules are also not adapted. Rules act in two ways. First they constitute a barrier to users' strive to perform individual benefits. Secondly they secure the collective action since all users get a fair return from the resource. As seen in section 3.3.3 most of the rules concern the herd and pasture management, the commitments and supervision of the users and the utilisation of the revenues performed by the collective

organization. Among all the rules listed in section 3.3.3.3 some of them might be subject to adaptation according to the statement of the interviewees and the above mentioned problems. For instance rules concerning the labour to be accomplished by the members on the pastures seem to be faced with a problem. As depicts in section 3.2.2.2 the number of active members tend to decline yearly. They account for the persons who achieve most of the duties of pasture maintenance and herd management. These duties represent especially a high burden when the part of active members lowered to only a couple of persons. Rules such as the grazing fees and the number of animals allowed to graze need also adjustment. Some adjustments were already carried on in the collective alps which for example do not claim grazing fees any more. Another lack of the rule systems often betray by the members is the forbidding of different animal types. Most of the time only cattle are allowed to graze and to some extent sheep herd. Some interests exist among the members or non-members to let other kind of animals such as goat and horses. We see that some of the rules are not well-working because their actual content does not match the current situation. However in some of the cases it seems that agreement has been found to overcome the restriction. The rules and enforcement mechanisms remain relatively flexible.

The evaluation of the level of decision-making showed that most of agreements are achieved on collective participatory. Most of the decisions are agreed during the General Meeting and in some extent between the members of the Management Board. The decisions are agreed most of the time on consensus between the participants. These factors enhance the efficiency of collective action.

Monitoring and enforcing is almost inexistent. This has to do among others with the type of good of the resource. As demonstrated in section 3.2.1 the resource tends to toll good because exclusion is easy and rivalry is low. These two factors confirm that problem of free-riding or breaking the rules are more unlikely to occur as competition for the resources is low. This reduces some of the transaction costs of monitoring and enforcement and also sanctioning. We noticed that institutional arrangements are less implemented in collective alps with a low number of users (see section 3.3.3). This is motivated by the effect of transaction costs. With a low number of participants it might be not economic profitable to create institutional arrangements since the decision-making and rules can be directly bargain between the users.

Factors like community's homogeneity and social cohesion and trust "...are likely to have considerable influence on the motivation of each single member of the community to cooperate, to respect rules and to consider the needs of future generations when managing natural resources" (FISCHER ET AL. 2004 p.24). The community of users of the collective alps

seems to be relatively homogenous. The community is mostly composed of persons running a farmstead and living in the same district. This is strongly secured through the property rights. The rights of accreditation (for instance in most of the collective alps accreditation is attributed to users with a farmstead), allotment and transmission are playing a major role in compiling similar groups of users. This faces but more and more the problem of declining number of farmers in the region.

The intern cohesion of the collective alps so as trust between the members seems to function well. This is highlighted by the fact that monitoring and sanctioning are in the mean not so strongly required inside the collective alps. When the users trust each other and agree with the existing rules system, the incentive to break the rules is lower. This is also strengthened through the low emergence of conflicts between the members. Some problems of social cohesion occur in fact between active and passive members. The interests of both groups are often diverging. The emergence of passive members is a relatively recent situation going back to the 70's. The first are using the alps, are involved in the resource management and act on its preservation. Whereas the latter often remain in the collective alps to benefit from some advantages and sometimes even keep important position at decision-level. They do not want to give away their vested rights, though they do not use them any more. Conflicts occur when the active do not want to afford too much work and money when it profits also the passive members. Rules are lacking for regulating these conflicts. Globally apart from the latter mentioned conflicts "the arena of actors is characterised by a rather" good social cohesion and homogeneity and trust motivating cooperation.

Other social aspects of participating in collective alps play, according to the statement of the interviewees, an important role. As described MEINZEN-DICK ET AL (1999 p.56) "people care how they are viewed by others, one can be motivated to participate by the approval they will get from others who are also inclined to participate." Moreover participation in the collective alps "offers an opportunity to socialize with others and form stronger relationships" (MEINZEN-DICK ET AL 1999 p.56). And "such networks contribute to greater livelihood security" (MEINZEN-DICK ET AL 1999 p.56). We could hatch that these aspects are playing a role especially when the group of users belongs to small-scaled community where "everybody knows each other". Other social aspects like tradition play a significant role in this alpine region. Social cohesion is also reinforced through the long-enduring resilience of the collective alps and their current rarity. Users want to continue using them because they constitute heritage of the past centuries. The decline of the number of collective pastures all over the country except in marginal region strengthens the special feature of the remaining.

These rights guarantee a certain prestige. Finally users behave as proprietor and are reluctant to give away rights vested since generations.

The influence of authorities in the efficiency of collective action can also be preponderant for several reasons. For instance “state recognition of users’ rights increases tenure security, creating greater incentives for users to participate in management and invest in the resource” (MEINZEN-DICK ET AL. 1999 p.53). Involvement of state and authorities may range on a scale between no implication at all and fully management. The particularity of the collective alps is that authorities play a role concerning their recognition as entity and of their property rights. Moreover they support these systems financially with different programs and are willing to cooperate. However authorities are by no means involved in the intern governance and management of the systems.

Authorities and especially the ones at local level understood earlier the importance of these collective alps for their municipality and region. The alpine farming societies play an important role for their preservation. The dialogue is good and constructive and the users are quickly informed about new consideration at governmental level. This supports them to adapt to changes. Authorities play an important role as financial supporter. Measures had been developed to support the collective alps, for instance through the allowance of subsidies. As argued MEINZEN-DICK ET AL (1999 p.57) “financing of user groups is a fundamental requirement for their long-term sustainability. If organizations cannot raise enough cash, labor, or in-kind contributions to fulfil their designated roles, they will not be viable.” Moreover “vesting control over resources, including the right to earn income from them, in the user group can also strengthen collective action by giving the organizations a source of revenue to cover their expenses” (MEINZEN-DICK ET AL 1999 p.50). Support measures were established to act as incentive at several levels. First they motivate the creation of collective organisation since on the contrary to private alps, the collective alps do not hold an upper limit for the allowance of the compensatory payment for Less-Favoured Areas. The level of allowance increases with the number of hectares. Secondly, the support measures motivate the implementation of a constitution since it is often a condition to be eligible to the subsidies. This may help to increase the efficiency of the collective alps through more transparency about the intern organisation. Finally they motivate the pastoral utilisation and management also on higher altitude since for instance the compensatory payments are higher above 1.000m. It is noticed that the implementation of the first financial support in the 60’s has stopped the decline of the number and utilisation of the alps and collective alps initiated in the 50’s (STATTMANN 1981).

The representatives of the Alpine farming societies asserted that globally the menace of strong encroachment is under control as long as financial supports from the authorities are maintained (DANKS ET AL 2005). However these may not necessarily improve the utilisation intensity of the pastures. For instance under the area payment scheme the optimisation problem for most alpine pasture systems is to maintain the maximum area of pastoral land with the minimum amount of animals. This is done for the following reasons: The income is mainly derived from acreage dependent premiums but the main source of costs is labour whose amount is strongly related to the number of animals kept. Already currently, some alpine pastures voluntarily stock less animals than they could with respect to the carrying capacity of their sites. This occurs even in cases where the lowland farmers are willing to pay a grazing fee in order to let their animals graze on the alpine pastures (DANKS ET AL. 2005). This is reinforced by the fact that the collective alps have low land tenure costs (rent and taxes) which does not make any incentive to intensify the utilisation of the pastures. This confirms also our observation that sharing profits of the systems to the members does not really motivate the members to enhance the productivity of the resource over time since in the mean collective alps without distribution of surpluses perform better utilisation and maintenance. In organizations where individual profits are at stake, the users act for their own interest and are less motivated to accomplish collective commitments.

OAKERSON stipulated that “rules [...] do not guarantee the emergence of a particular pattern of behaviour. Between rules and observed behaviours lie the unobserved mental calculations of individuals who make choices” (1990 p.13). For achieving good collective action, apart from endogenous factors considered so far, the motivation of each individual plays a crucial role in the resource use. The question here is not so much the profits generated inside the collective alps as the one perform outside on the farm level. The capacity to cooperate is relying on two factors. On the one side the high degree of social, cultural and economic homogeneity. On the other side a high dependence or reliance of the users on the resource for their livelihood and where the number of alternative livelihood in the community is low (ICLARM 1996). The first factor is, as seen previously, more or less performed, the second one is not a strong matter for the users of the collective alps. Living standards are generally good and the users are not highly dependent on collective alps for their livelihood.

The analysis reveals a couple of components with regard to the utilisation intensity of the resource. Some lacking of property rights and rules, conflicts between active and passive

members, reverse effect of financial support and especially the low economic value of the land seems to act as disincentive for utilising the resource.

5 CONCLUSION

The discussion permits to identify the characteristics of the system influencing the efficiency of the resource utilisation. Some components like property rights and rules may in some cases not be adapted. For instance rules are lacking in situations where use of the resource is depleted. Moreover the adaptation of some rights such as access and exclusion right seem important to guarantee the continuity of utilisation of the pastures. The characteristics of the community and the level of decision-making perform a relatively good social cohesion. Financial support and involvement of external bodies reinforce the signification of the collective alps, although it has some reverse effects on the systems. Individual interests in the exploitation of the resource seem to play a significant role as well. All these points deliver a first draft of explanation regarding the current use of the systems.

We see that the collective alps are under changes. They show nonetheless some draft of flexibility and adaptability to changes. The resilience of the systems over the centuries is anyway an indicator of their sustainability.

Maintaining the collective alps meets the interests of the society to conserve low intensively used open cultural landscapes. As stated BERGE (2002 p.1) in Western Europe “the urban way of life creates a demand for new types of commons.”

One of the next steps will be to concentrate on the farm system level. A socio-economic analysis of the farms using the collective alps would give an interesting insight about the relevance of the organization for the viability of the farms. Indeed we consider that “people act under bounded rationality, i.e. that they always try to increase their individual utility” (FISCHER ET AL. 2004 p.9). The decisions and actions of individuals are those of broadly rational individuals. The level of benefits the members gain from exploiting the resource is one of the first cornerstone since it stimulate their incentives. The classification of the type of good (section 3.2.1) reflects in some extent the interest of the individuals for it. Moreover it would be interesting to complete our analysis by predicting the impact on some changes on the collective alps such as the CAP-Reform (Common Agricultural Policy) and the changes in market prices and world trade regulations. The way these changes influence the farms and agricultural sector and how this in turn affects the collective alps could be important for making predictions and recommendation toward the authorities.

The study of long-enduring common property in Western Europe gives insight about their management and regulation mechanisms and their current stake. These systems are a proof that community-based natural resource management (CBNRM) with low state regulation perform well. However it seems necessary that they dispose of the capacity to evolve and to adapt their intern structure to the external changes.

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