

# **TRIUMPH OF THE COMMONS; A CASE STUDY OF THE OBER-INN AND ÖTZ VALLEYS IN TIROL, AUSTRIA**

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March 2013

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## Abstract

Pastoral land rights remain a great concern for land administration especially in African countries where pastoralists move seasonally in search of grass for their livestock. Their land rights have often been excluded in the formalization of land titles and many conflicts occur with sedentary farmers. The issue have been aggravated when Hardin postulated doom for resources held in common. Thus many developments on land issues never gave much attention to the pastoralists land rights and communal land holdings. While these negative perceptions of communal land management persist, in the Alpine regions of Western Europe, communal pasturing and communal land holding do exist.

The aim of this study therefore was to investigate, comprehend and understand the tenure arrangement and management of the Alpine pastures and mountain meadows in the Upper Inn and Ötz valleys in Tirol, Austria. Four Municipalities; Serfaus, Fiss, Ladis and Sölden were chosen as the study area and data collected from eight (8) key informants. Six (6) key informants were from user groups/Alp Association (*Agrargemeinschaft*) of the Alpine Pasture (commons) and two (2) from Municipality. A semi-structured interview using questionnaire guide was conducted to elicit information from these key informants who were either, the chairpersons or secretaries of the user groups (*Agrargemeinschaft*) or mayors of the municipalities. Some of the informants contacts were identified through the web browser and others were provided by the Alpine Forschungsstelle Obergurgl (AFO), University of Innsbruck.

The theoretical framework of the study is based on Five (5) of the eight (8) design principles of (Elinor Ostrom, 1990). The study reveals that communal land holdings and pasturing is sustainable. The adherence of the design principles tested in the study indicated that the principles are applicable within the study area. In Serfaus, Fiss and Ladis, it was found out that ownership of the Alpine pastures are registered in the name of the Municipality while the management of the grazing is organized by the *Agrargemeinschaft*. In Sölden however, the *Agrargemeinschaft* are the registered owners of the Alpine pastures and at the same time manage and organize the grazing activities. Apart from grazing on the pastures, there is also an important use of the pastures during winter season where private companies who have lease rights organize skiing activities. The user group are well organized and the management of the resource is managed through elected executives of the AGM who are answerable to members during annual meetings where decisions are taken collectively, participatory and democratically.

**Keywords:** land tenure, Alpine pasture, design principle, Tirol

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## Dedication

I dedicate this work to my lovely wife and daughter Malba Rose and Sandra Yirilabuo respectively.

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# 1. INTRODUCTION

## 1.1. Background and Justification

There is much written on property rights and management regimes of land in relation to their access, use, and security. Property regimes are often categorized as either open access, common, state or private. De Soto (2000) is of the view that private property ownership and formalization of land titles is the surest way to effective and efficient development. The work of Hardin (1968) amongst others, underpinned many development policies especially land reforms towards private property ownership. Communal property regime as compared to private property regime is considered inefficient because of the absence of individual interest in the resource. It makes people act in ways that injure the common good; thus many development policies especially land reforms have underestimated local institutions that operate communal property regimes (Heltberg, 2002).

By the end of the 19<sup>th</sup> century, most historical commons have largely been eliminated in most parts of northwest European continent because common property regime was regarded as inefficient (Bravo & Moor De, 2008; De Moor, 2009). Also, in Africa, communal property ownership was disfavoured after independence with the implementation of market oriented land policies which were designed and recommended by the World Bank. “These policies have often ignored existing customary and local institutions and disregarded the distributive issues underlying tenure security, and consequently, the materialization of market oriented land policies in Africa have not yielded the desired benefits as well as loss of secondary land rights to some sectors of the population particularly pastoralists” (Lorenzo, Toulmin, & Hesse, 2004).

Most neoclassical economists have prescribed individualization and formalization of property rights as a way to secure tenure and raise capital (De Soto, 2000). De Soto (2000) attributed insecurity of land rights to the nature of traditional land ownership, predominantly the communal nature and nonexistence of documentation. He further states that communal ownership of land is an impediment to domestic and national investment. “This renders the landed assets of people in developing countries defective because land cannot be traded or used as collateral for credits” (Obeng-Odoom, 2012). The situation of the poor according to De Soto (2000) is akin to corporations that cannot issue bonds or shares against investment. In effect, land, the asset of the poor, is “dead capital” (De Soto, 2000, p. 5). For these reasons, private property rights are advocated: where land is individually owned, recorded and commoditized (Obeng-Odoom, 2012). Given further weight to the individual title argument, the Commonwealth Association of Surveying and Land Economy (CASLE), United Nations Human Settlement Program (UN-HABITAT) and the Africa Real Estate Society (AfRES) all agree that sustainable land management and administration is the surest way of alleviating poverty (Obeng-Odoom, 2012).

Lengoiboni, van der Molen, and Bregt (2011) observed that pastoralists secondary land rights are not taken care of with the individualization and formalization of land rights. They argued that, “the imposition of exclusive statutory real property rights in or near pastoralist’s areas and their migration corridors permanently excludes and extinguishes pastoralist rights to mobility and access to require resources” (Lengoiboni et al., 2011). This affects their socio-economic progress and livelihood (Heltberg, 2002;

Lengoiboni et al., 2011). Heltberg (2002) and Lengoiboni et al. (2011) therefore call for a re-look on how these complexities and overlapping rights of the pastoralists can be accommodated.

Many scholars have countered the proponents of individualization and formalization of land rights and have indicated how resilient communal land ownership and management of resources have succeeded in many places (De Moor, 2009; Kellert, Mehta, Ebbin, & Lichtenfeld, 2000; Kgositkoma, Harie, & Mojeremane, 2012; McKean, 1992; Elinor Ostrom, 1990). Kgositkoma et al. (2012) in their study of *“Bush encroachment in relation to rangeland management systems and environmental conditions in Kalahari ecosystem of Botswana”*, have indicated that ‘proliferation of bush thickets differ between sites but not between management systems at local scale and there is even higher land degradation in private ranches than in communal grazing land’. Elinor Ostrom (1990) in her book *“Governing the Commons: The Evolution of Institutions for Collective Action”* has presented substantial distinctions to establish how some resources are more efficiently used when held in common. Elinor Ostrom (1990) also pointed out that, “Non-legal, customary and norm-legal-based forms of regulation often act to mitigate the theoretical dangers of over-use or under investment of common resources”.

Elinor Ostrom (1990) has therefore proposed eight (8) principles for the sustainable management of resources held in common. These include; clearly defined boundaries, congruence between appropriation and provision rules and local conditions, collective-choice arrangements, monitoring, graduated sanctions, conflicts resolution mechanisms, minimal recognition of rights to organize and nested enterprise (refer to section 2.4.1 for a detail review). Elinor Ostrom (1990) argued that when these designed principles are adhered to, the issue of the tragedy of the commons as postulated by Hardin (1968) could be averted. Some areas in which the adherence or otherwise of the 8 design principles in the management of CPR has been examined include indigenous forest management (Morrow & Hull, 1996), irrigation management (Sarker & Itoh, 2001) and fishery management (Cinner et al., 2012; Yandle, 2003).

Communal land ownership and management of pastures and forest are still the common forms of ownership that exist in most parts of western European Alpine regions. However, there is a lack of understanding of how the system works in Tirol with regards to grazing, skiing and tourism at least in the English language. The aim of this research is to observe and record how the Alpine commons of Tirol, Austria are able to accommodate and manage summer grazing, seasonal tourism and a range of other uses. Particular attention is on how communal grazing in the Alps is managed. This research is a contribution to countries especially sub-Saharan African countries that currently have difficulties in managing communal grazing lands by publishing the findings of this study.

## **1.2. Research Problem**

Contrary to Hardin (1968) argument of the unsustainability of communally owned property, Kellert et al. (2000), Kreutzmann and Schutte (2011), McKean (1992), Elinor Ostrom (1990), E. Ostrom, Burger, Field, Norgaard, and Policansky (1999), De Moor (2009) and Richards (1997) have provided ample evidence that resources such as forest, fish stock, pastures etc. held in common or communally owned can be efficiently and sustainably managed. Despite the fact that there are abundant demonstrations of the resilience of common property resources management, their management can be very difficult depending on the type and scale of the resource e.g. fresh water in an international basin or large marine ecosystem, stocks of ocean fishes or petroleum reserves etc. (Bastakoti & Shivakoti, 2011; E. Ostrom et al., 1999). Common pool resource dilemmas may occur when the principle of exclusion is difficult to define (E. Ostrom et al., 1999). In situation where there is difficulty in the definition of rules limiting access, rights and duties,

people may follow their short term interest and produce outcomes that will be disastrous to the long term interest of others (E. Ostrom et al., 1999), and consequently depletion of the resource.

Some key observations made in literature with regards to the management of CPRs are as follows;

- Notwithstanding the sustainability pessimism of some scholars in the management of common pool resources, many resources in the European Alpine region have been held and managed in common for over a century.
- Most authors usually recommend Elinor Ostrom (1990) 8 design principles as the foundation for the sustainability of communal property resources. However, the applicability or otherwise of these principles in the context of communal grazing pasture in Tirol which has existed for many centuries and formalized since 1853 (Herbst, 2004) is not known.
- Netting (1976) study on communal tenure and management in Torbel, a Swiss Alpine village is often used by most authors to generalize for the whole Western European Alps. However, according to Elinor Ostrom (1990), Netting (1976) has made it “clear that Torbel should not be considered a prototype of a Swiss Alpine village”. This implies that the findings in Torbel are not the same throughout the Swiss Alpine to talk of the entire Western European Alps. “A review of literature on common-property regimes in Swiss Alpine meadows reveals considerable diversity of legal forms of governing Alpine meadows” (Picht, 1987 cited in Elinor Ostrom, 1990).

The overarching problem the research focuses on is as follows:

*‘Many resources in the European region are still managed in common by user associations or community institutions’ (Bravo & Moor De, 2008), however, very little is known about the tenure arrangements and management system of the Austrian Alpine commons at least in the English-language literature and as such, not much is known about the system in the field of land administration. This means Land Administration (LA) is missing out on vital lessons.*

### **1.3. Research Objectives and Questions**

The overall objective of this study is:

*To comprehend, analyze and evaluate the applicability of Elinor Ostrom (1990) eight design principles of long-enduring CPR in the management of communal pastures in Tirol*

Where;

Communal pastures refer to common pastures (Alpine commons) above the tree-line in the Alps; (see Appendix: F for a spatial model of common pasture)

Recognized framework refers to Elinor Ostrom (1990) eight design principles of long-enduring CPR management.

The specific objectives and questions as stated in below are based on 5 out of Elinor Ostrom (1990) eight design principles of long-enduring CPR. These principles in the researcher’s consideration are much related to the land administration domain that deals with rights, responsibilities and restrictions. The remaining principles implicitly are interwoven into the interview guide. Specific Objective 1, 2, 3, 4 and 5 are derived from Ostrom’s principle 1, 2, 3, 5 and 7 respectively ( refer to Figure 2.1, p. 15 for Ostrom 8 designed principles)

Table 1.1: Research objectives and questions

Objectives	Questions
1. To assess the bundle of rights of users of communal pastures and how they are defined	What are the bundles of rights of users of communal pastures and how are they defined?
2. To identify the appropriation rules put in place to regulate the use of communal pastures	What are the appropriation rules put in place to regulate the use of communal pastures?
3. To assess how operational rules are made and modified	How are operational rules made and modified?
4. To assess the sanctions put in place to regulate the use of communal pastures and how they are defined/enforced	What punishment/rewards are put in place to regulate the use of communal pastures and how are they defined/ enforced?
5. To assess whether institutions devised by users of communal pastures are recognized by municipal authorities	Are institutions devised by users of communal pastures recognized by municipal authorities? How are they recognized?

#### 1.4. Thesis Structure

##### Chapter 1: Introduction

This chapter gives an overview of the research, the background and justification, the research objectives and questions.

##### Chapter 2: Literature Review

This chapter presents a definition of relevant literature terminologies on Tenure Systems (property rights) and Land Administration Systems, Institutions, Natural Resource Management (NRM) under Communal Ownership and Pastoralism. Particular attention is given to Communal Land holdings and how it supports pastoral activities in the management of pasture lands. The chapter also reviews the historical structure and development of communal land management in Austria.

##### Chapter 3: Research Methodology

This chapter gives an explanation of how the research was carried out. It includes the selection of the study area, interviewees, and preparation of questionnaires and how the interviews were conducted.

##### Chapter 4: presentation of results

In this chapter, results of interviews conducted on the field are presented. The results are presented according to the stated objectives of the research. Each Alpine pasture ‘*Alm*’ has a user group association and respondents represented each user group association.

##### Chapter 5: Discussion of Results

This chapter discusses the results of the study presented in Chapter 4. The discussion is put into five main sections in line with the objectives of the study. These sections include bundle of rights of users of communal pastures, appropriation rules in the use of communal pastures, operational rules in the use of communal pastures, sanctions and recognition of user rights by the municipal authorities.

##### Chapter 6: Conclusion and Recommendation

This chapter presents the conclusion of the whole study by giving a summary of the main findings according to the study objectives as discussed. It also makes recommendation of the study in connection with the findings and further research topics of the study.

## 2. LITERATURE REVIEW

### 2.1. Introduction

This chapter presents a definition of relevant literature terminologies on Tenure Systems (property rights) and Land Administration Systems, Institutions, Natural Resource Management (NRM) under Communal Ownership and Pastoralism. Particular attention is given to Communal land holdings and how it supports pastoral activities in the management of pasture lands. The chapter also reviews the historical structure and development of communal land management in Austria.

### 2.2. Land Tenure

“Land Tenure defines the rights, restrictions and responsibilities people have in relation to the use and benefits of land” (Nichols, 1993, p. 31 as cited in Zevenbergen, 2002). Land Tenure can be broadly classified as either formal (statutory) or informal (customary). ‘Land Tenure is managed by a Land Administration System through the processes of surveying and mapping, land registration, land conveyance, land valuation and taxations regulation of land tenure, allocation of interests in land, dispute resolution and land markets’ (Nichols, 1993, p. 41 as cited in Zevenbergen, 2002).

The UN-ECE (1996) defines Land Administration (LA) as “the processes of determining, recording and disseminating information about the tenure, value and use of land when implementing land management policies” (Zevenbergen, 2002). The recordation of tenure and for that matter, property rights is through National Information Systems in terms of Cadastre and Land Registry. ‘The registration of land involves official recording of rights in land through deeds or title’ (Zevenbergen, 2002). Land rights can also be held by individual, groups, states or even open to everyone. The following sub-section takes a look at the types of property regimes to land and natural resources.

#### 2.2.1. Open Access

‘This type of property regime is where there is no defined ownership and control of the resource resulting in the free and unregulated exploitation of the resource by users’ (Bromley, 1989; Heltberg, 2002). Bromley (1989) further described open access property regime as a “situation where there is mutual privilege to access and use but no right, it is a rule of first capture or first to exercise control and belongs to no one until it is in someone’s possession”. In such situations the resource is prone to over-use and degradation especially when the population densities increased and can aptly be described as ‘tragedy of open access resource’ (Heltberg, 2002). To avert this situation, Heltberg (2002) recommends the establishment of an independent body to regulate the use of any open access resource.

#### 2.2.2. Common Property

In the “new institutionalism”, (Bromley, 1989; Elinor Ostrom, 1990) sees common property or common pool resources as public goods which are used concurrently or sequentially by different users because of the difficulties in claiming or enforcing exclusive rights or because they are so spared or uncertain, it is sometimes not worth doing so (Heltberg, 2002).

‘Resources under communal ownership have a defined access rules with respect to community membership, exclusion of non-owners, definite membership, sometimes definite boundaries with common interest’ (Bromley, 1989). ‘Management group has the right to exclude non-members and non-



members have a duty to abide by the exclusion; individual members of the group do also have both rights and duties with regards to use rates and the maintenance of the resource owned' (Bromley, 1989). Most at times, 'these co-owners have common cultural norms and their own endogenous authority systems' (Heltberg, 2002).

According to Heltberg (2002) 'Common property encompasses shared ownership of resources such as irrigation systems, fisheries in natural waters, common forest and pasture land (research interest)'. In this type of property rights, 'ownership can be entrusted in a tribe, village clan or lineage, user cooperatives, municipality or local government' (Heltberg, 2002). 'Equity and insurance of access to resources in this type of property rights is very high and highly promoted in rural settlement' (Heltberg, 2002). There is however the issue of encroachment of outsiders if the rules of enforcement are not adhered to.

Baland and Platteau (1996) has further given a distinction and distinguished between regulated common property and unregulated common property. The regulated property is 'where there is a set of rules governing resource utilization whereas in the unregulated resource property, there are no limits to utilization, the resource is only protected by the community membership restriction but conservation rules are not enforced or do not exist' (Heltberg, 2002). Thus could lead to over-use and degradation if the resource users are relatively larger than the resource.

'In most parts of Africa, access to land is governed by traditional communal land rights where land is owned by the tribe, clan or village and individual cultivators hold use rights which are subject to approval by traditional village authorities- this use rights may or may not be transferable' (Fratkin, 1997).

'Communal land rights offers considerable security of tenure because, it is supported by traditional local authorities' (Fratkin, 1997), and thus enjoy widespread acceptance within the rural communities. 'The inability to sell land out permanently serves as an insurance substitute and protection against landlessness; it also provides secondary rights of access to herders, collection of fuel wood and hunting of game etc. to other segments of the society' (Fratkin, 1997).

### **2.2.3. State Property**

State ownership of resource is 'where the state is both the enforcer of access and conservation of rules' according to (Bromley, 1989; Heltberg, 2002). That is to say, control over the use of the resource in question rest in the hands of the state (Bromley, 1989; Heltberg, 2002). Individual and or groups may be able to use these resources but do not have control over the resource neither can they exclude other users. The duty of individuals here is to observe use and access rules determined by controlling/managing agency of the state (Bromley, 1989). 'In the event of failure of the state to enforce the rules, state property could become de facto private or open access, and thus could lead to encroachment and subsequently over-use or degradation' (Heltberg, 2002).

'In countries where most natural resources including land is owned by the state, cultivation rights are normally given to individuals or collectives. This sometimes leads to uncertainty about the long-term tenure security and few people have the incentives to make major investment and improvement on the resource' (Heltberg, 2002).

### **2.2.4. Private Property**

According to Heltberg (2002) private property are 'properties that are invested in the individual who has the rights of possession, transfer, use, change and destruction of the asset'. Bromley (1989) described this type of property regime as where the 'individual has the right to undertake socially acceptable uses and

also a duty to refrain from socially unacceptable uses while those excluded have a duty to refrain from preventing this individual from socially acceptable uses of the property in question'. In such a property regime, the individual is said to have the long-term security of investing and improving upon the resource (De Soto, 2000).

De Soto (2000) is of the view that, 'property held by the individual and registered in the individual's name can be used as collateral for loans and mortgages; thus his call for the formalization and privatization of lands especially in developing countries'. Hardin (1968) has also emphasise that resources that are privately held, are more sustainable than communally owned resources since the individual will not want to over exploit the resource which he/she is not in competition with any one.

### **2.3. Land Administration System (LAS)**

According to van der Molen (2002), Land Administration (LA) has many definitions depending on how the term administration is understood or used. The UN-ECE (1996) defined LA as "the process of determining, recording and disseminating land information about the ownership, value and use of land, when implementing land management policies". According to van der Molen (2002) three main components are found in this definition; 'ownership referring to how rights to land is held, value referring to all kinds of value land may be considered, and the use of referring to the purpose to which land is being categorized or put to use'. 'LA provide the rights to exercise property or ownership rights on land based on cadastral processes of adjudication, survey and registration of rights' (Lengoiboni et al., 2011; Zevenbergen, 2002).

'Land Administration Systems (LAS) such as social (Institutions), legal, economic and technical framework are essential in the management of land as a natural resource' (Williamson, 2001). It is from this framework that the managers and administrators of land can operate (UN-ECE, 1996). 'In many developed countries, land administration infrastructure has proven to be effective in terms of support to land markets, the use and creation of capital, land use planning, land taxation systems, urban infrastructure and natural resource management through the provision of spatial frameworks that provides topography, land tenure, value and land use' (Williamson, 2001). 'The demand for land resources for agriculture (pasture, forest), infrastructure and urbanization by various interest groups has often led to conflicting demand. The development of a system to manage state land, record and register other interests in land is therefore necessary and the land administration fits well in this aspect' (World Bank, 2007).

The core of LAS is the cadaster; defined as "a parcel-based and up-to-date land information system containing a record of interests in land e.g. Rights Restrictions and Responsibilities" (RRR)(Bennett, 2007; Williamson, 2001). Included in this RRR is 'geometric description of the land parcel linked to the other records describing the nature of interests, and ownership or control of these interests' (Williamson, 2001). 'The focus of Cadaster 2014 is from land parcel- based to land objects- based where homogenous rights, restrictions and responsibilities are recorded in such a way that the more complex arrangement of rights, restrictions and responsibilities accommodate both environmental and social priorities in addition to traditional economic drivers' (Williamson, 2001). 'The success of LAS is not only dependent on its legal or technical sophistication but the ability to protect land rights adequately and permit rights to be tradable efficiently, simply, quickly, securely and at low cost' (UN-FIG, 1996; Williamson, 2001). It is therefore important that resources that are held in common are recorded in this land information system.

In this study, issues related to land administration systems that are central to long enduring CPRs as outlined by Ostrom include land ownership, land-use and land management. The applicability or otherwise of these land administration systems in the context of Tirol were investigated.

## **2.4. Institutions**

Institutions according to North (1991), “are the humanly devised constraints that structure human interaction”. He categorized institutions into formal (rules, laws, constitutions) and informal (norms of behaviour, conventions, and self-imposed codes of conducts). McKean (1992) and Elinor Ostrom (1990) noted that institutional design is a trial and error process; some people may be able to come out with rules that could protect their common interest and others may fail .

According to Elinor Ostrom (1990) a successful design of institutional rules and enforcement can solve the problem of free-riders so that land held in common is workable. Elinor Ostrom (1990) further stated that ‘getting the institutions right is one of the important things in the management of resources although it is a difficult task; time-consuming and conflict-invoking process; The process should include reliable information about time and place variables as well as broad repertoire of culturally acceptable rules’. De Moor (2009) is of the view that ‘sustainable management of common property is anchored on rigorous institutional framework to encourage the cooperative behaviour of the users of the resource’. To this end (Elinor Ostrom, 1990) developed eight (8) principles that should be observed in the management of resources held in common. Figure 2.1 shows the conceptual framework of the eight design principles.

### **2.4.1. Design Principles for the Management of Common Pool Resources (CPR) that is Long-Enduring**

The development of the design principles for long-ensuring common pool resources management as a conceptual framework by Ostrom is in response to Hardin’s postulation that a shared common resource is bound to overexploitation and unsustainability because of the individual egocentric interest and lack of coercion. The framework suggests that the ‘top down or one size fits all’ approach to managing resources does not guarantee sustainable resource management rather an institutional arrangement where the users and owners of the resources in question have the right to take decisions that are suit their indigenous norms and traditions and in a participatory manner. The emphasis of the framework is on diversity of each resource system to respond to its own needs, stresses and demands within its local situation.

In her book governing the commons, Ostrom presented small-scale CPR situations where self-organization and self-governance were observed and subsequently the identification and recommendation of eight principles that cut through in these resources management; clearly defined boundaries, congruence between appropriation and provision rules and local conditions, collective-choice arrangements, monitoring, graduated sanctions, conflict resolution mechanisms, minimal recognitions of rights to organize and nested enterprise Figure 2.1.

The first principle is not limited to clarity of defined boundaries but also emphasise is put on the clarity of the users of the resource in question. That is to say that both the resource and the user group are known in order to check trespassers. Once this is defined and known, non-users can be excluded (exclusivity) in the access to and use of the resource (Elinor Ostrom, 1990).

The second principle concerns sustainability of the use of the resource. The rules for appropriation and provision should reflect local condition and the ecological system. It emphasises on the quantity of resource that is to be harvested by each user and what technological (machine etc.) is allowed in harvesting the resource in question. This principle is to check and make sure that users do not over harvest the resource beyond its ecological limits (Elinor Ostrom, 1990).

The third design principle concerns how the planning, decision making and co-ordination of activities are made. This principle emphasis on the need for users of the resource in question to be part of the decision-making and planning of appropriation and operational rules that govern the use of the resource. Once the process is participatory, each user will try to respect the rules they have design to govern the use of the resource. As postulated, rules designed by user groups are more likely to be respected by the group since it was they who agreed and set up those rules. The opposite holds because the user group will have the feeling of not belonging or owning the rules and therefore will ignore the rules set up by the external body (Elinor Ostrom, 1990).

The fourth principle talks about the mechanisms that are put in place to monitor both members of the user group and non-members of the user group from breaking the set rules and or trespassing on the resource of the user group. This principle is also to ensure that user of the resource adhere to the operational rules. The monitoring when done by users of the resource itself can be more effective and reduce transaction cost. In other cases, a special committee can be set up to monitor the use of the resource (Elinor Ostrom, 1990).

The fifth design principle concerns the sanctions that are to reprimand people who violate the rules in the access to and use of the resource. The sanction is said to be graduated because an assessment of the gravity and the circumstances leading to the breaking of the rule is looked into before the punishment is given out to the offender (Elinor Ostrom, 1990).

The sixth concerns how conflicts are resolved in the event that they arise. There should be a mechanism of how to address these conflicts. Conflict resolution process must be rapid, accessible and low cost within the local arena. The conflict mechanism put in place must be acceptable and fair to all users of the resource in question (Elinor Ostrom, 1990).

The seventh design principle talks about how user group rights are recognised by higher authorities such as the state institutions such that rules derived by user groups are respected and approved by these authorities. Minimal recognition of state official to the legitimacy of rules defined by user group of common resources will enable user groups to be able to enforce the rules themselves (Elinor Ostrom, 1990).

The eighth design is that of nested enterprise where the resource users are organised on the basis of levels. This could be two; three or four levels where each level has a distinct system because the problems facing each level may differ from each other therefore establishing rules at one level without rules at the other level will produce an incomplete system that may not endure over the long run (Elinor Ostrom, 1990).

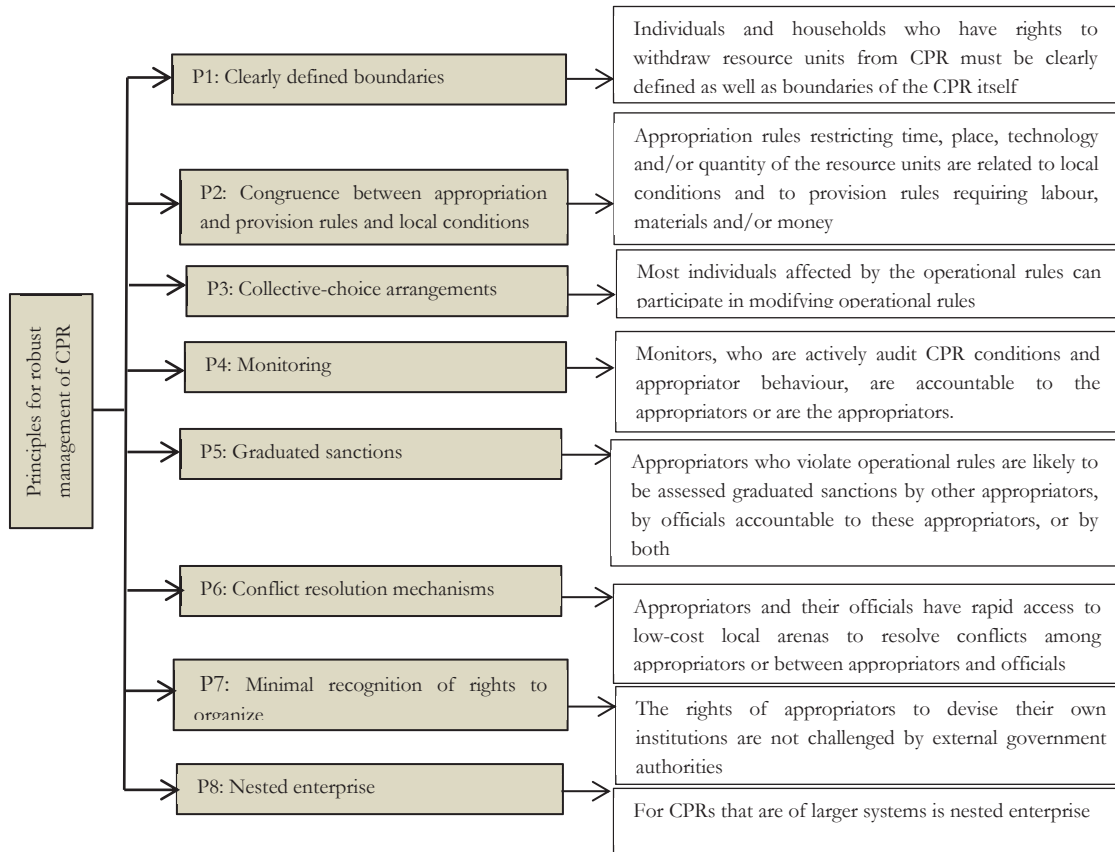


Figure 2.1: A framework of the eight (8) design principles for managing CPR; Adopted from Ostrom (1990)

‘Ostrom however does not suggest that these principles should be consider as a blue print to all CPR management’ (Agrawal & Ostrom, 2001).

The design principles have since been used in the study of indigenous forest management (Morrow & Hull, 1996), irrigation management (Sarker & Itoh, 2001) and fishery management (Cinner et al., 2012; Yandle, 2003). These studies have found that the principles are effective in the management of these resources. This research also seeks to confirm the applicability or otherwise of the design principles in the management of communal grazing land in Tirol which have existed since 1853 (Herbst, 2004).

## 2.5. Natural Resource management under Communal Ownership

Communal land tenure refers to a “situation where a community or a group of people hold secure and exclusive collective rights to own, manage and/ or use land and resources” (Andersen, 2011; Arko-Adjei, 2011). The term tenure in this context refers to the bundle of rights. In many communal land tenure, the rules and regulations are endorsed by the community or the group and are generally known to all but often

unwritten (Arko-Adjei, 2011; Lorenzo et al., 2004). ‘Property held in common has been misinterpreted to mean un-owned property to which no one has recognized rights’ (Elinor Ostrom, 1990).

McKean (1992) and Elinor Ostrom (1990) hold a contrary view to Hardin and other scholars who saw common property as a recipe for disaster, mismanagement and overexploitation. They made a distinction between common property and open access resources. In the later, ‘there is no defined owner and no one takes responsibility in the management of the resource and could be overexploited while in the former, there is a defined group of people with rules and regulations indicating who can use what resource, when and how’ (Bromley, 1991).

‘Common Pool Resources (CPR) such as pastoral land, forest, fallow fields, and fish stock are essential aspects of many rural livelihoods and a foundation for many communities’ way of life’ (McKean, 1992). McKean (1992) and Elinor Ostrom (1990) argue that interactive resources whose productivity is lowered through fragmentation, common ownership is much desirable for reasons of efficiency, equity and environmental stability comparable to parcelling the resource into individual owned pieces. This study is to look at how communal pastoral land is managed in the Alpine commons of Austria.

## **2.6. Pastoralism**

“Pastoralism is the practice where by human population depend on the products of domestic animals” (Fratkin, 1997). This practice is commonly found in arid and semi-arid areas in most African countries where resources are scarce (Fratkin, 1997; Kgositkoma et al., 2012; Milne, 2005). In Western European countries, the Alpines regions are used for pasture during the summer seasons (Bravo & Moor De, 2008). Pastoral populations have shown remarkable resilience even in the midst of scarce resources. ‘Pastoralists throughout the world today face more constraints on their economies than at any previous time. This is as a result of growth in human and livestock populations; loss of herding lands to private farms, ranches, and parks, urbanization, out-migration by poor pastoralists, increased commoditization of the livestock economy; and periodic dislocations caused by drought, famine, and civil war’ (Bravo & Moor De, 2008).

Most past and current debate regarding pastoral rangelands continue to make references to Hardin (1968) seminal article on the “*Tragedy of the Commons*” that premised the argument that, ‘holding land in common will let the individual herder have no incentive to limit the number of animals that are grazed on the land and without such limits, the condition will lead to land degradation and desertification’ (Lorenzo et al., 2004). ‘Pastoral development policies in the 1970s and 80s were heavily influenced by this negative perception’ (Lorenzo et al., 2004). ‘Customary pastoral land rights have rarely been acknowledged coupled with the concept of ‘rational and productive land use’ in francophone West Africa. Governments used this ‘rational and productive land use’ to justify the expropriation of pastures for other productive uses such as irrigated farming and commercial ranching’ (Lorenzo et al., 2004) to the detriment of the communal pasturing. This research was carried out to find out pastoral rights and activities are organized in Tirol.

## **2.7. Historical Structure and Institutional arrangement of Alpine Commons**

The ownership of common land was institutionalized since 1853 (Herbst, 2004). Before this period, land was owned by Sovereign (Nobility and Clergy) (Herbst, 2004; Rotherham, Agnoletti, & Handley, 2010). ‘Farmers in these communities met their domestic demands for timber, fuel wood hay etc. as easement on lands from severing their masters. Ownership of these lands was however transferred to the municipalities when these Nobility and Clergy were no more able to manage these lands’ (Herbst, 2004; Siegl & Schermer, 2008). ‘In 1848, the liberation of farmers in servitude and discharge of estates saw this annual



demand transferred into landed property' (Herbst, 2004; Siegl & Schermer, 2008). As a result, 'large areas of land were allocated for common use, with use rights still given to community members' (Herbst, 2004).

'In 1853, ownership of these lands was once again transferred from municipalities to community members who formed themselves into Agricultural Associations (*Agrargemeinschaften*). These Associations were basically made up of members of a Hamlets or villages or inhabitants of adjacent villages *Allmende*' (Herbst, 2004; Siegl & Schermer, 2008).

'In 1871, during the rearrangement of the land records in Austria, ownership rights were installed and attributed to specific bodies of the *Agrargemeinschaften* (Herbst, 2004). The commons were distributed to co-owners according to the shares of each member. This distribution was possible in areas where it was ecologically and economically favourable to sub-divide while in areas such as the high mountains (*Alps*) which were ecologically and economically unfavourable to sub- divide, remained the 'commons' to all members of the *Agrargemeinschaften* with specified rights and duties of all members' (shareholders) (Herbst, 2004; Siegl & Schermer, 2008).

For the sustainable use of these commons, in 1883, a supervisory body "*Agrarbehörde*" was established under the Imperial law on separation or regulation of rural commons to among other things, regulate the activities of the *Agrargemeinschaften* as shown in figure 2.2. By 1950, the *Agrargemeinschaften* operated on the legal status of cooperation under public law with its' legal basis been that of customary law. Under this laws the procedure for the dissolution of the *Agrargemeinschaften* were shrined (Herbst, 2004).

The legal status of corporation under public law established the *Agrarbehörde* as the regulatory body of all the *Agrargemeinschaften*. The *Agrargemeinschaften* is the legal person under the public law while the *Agrargemeinschaft* comprise group of all owners of estate with shares of the commonly owned land (*Stammsitzliegenschaften*) (Herbst, 2004). *Agrargemeinschaften* is a decentralized corporation under the public law. It comprises of executive body of the Plenary Assembly, Management Committee and the Headman. The Figure 2.2 gives the membership and functions of each executive body while Figure 2.3 illustrates the time-line of the evolution of the institution of the Commons in Austria.

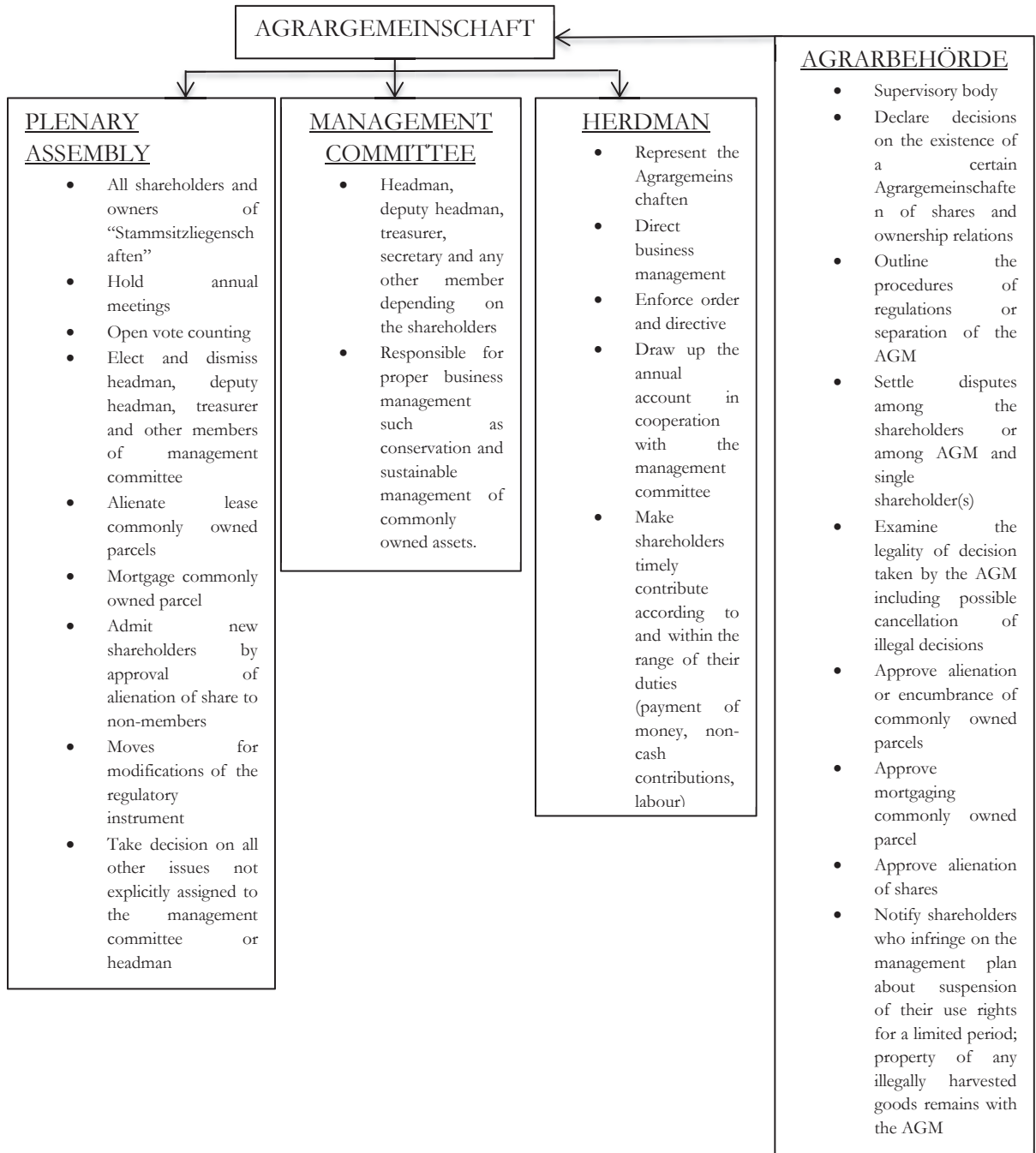


Figure 2.2: Institutional Structure of the management of the Alpine Commons; Adopted from Herbst (2004)



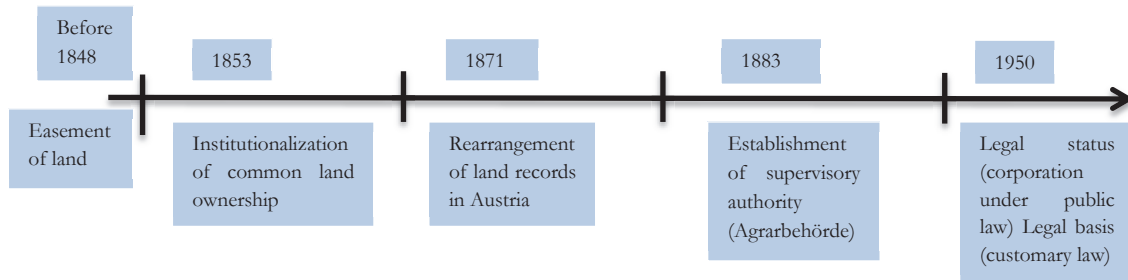


Figure 2.3: Time-line of the institutional evolution of the ownership and management of Alpine Commons; Adopted from Herbst (2004)

The following observations can be made from Figure 2.3.

- Pastoralists were given rights to graze on lands owned by the nobles.
- The ownership of common land was recorded in the land records in Austria.
- There was clear statute that gave legal backing to common ownership and management of pastoral land in Austria.

## 2.8. Concluding Remarks

This chapter has provided the basic definition of terminologies that are often used in the discourse of property regimes and rights. It has also provided the based for which the whole research is built upon. The chapter also looked at the various forms in which resources are held, the role of land administration and information systems in these land tenure forms, the institutions that are used to administer these land forms, and how the Austrian communal land has gone through a period of evolution. This is to understand the tenure regimes characteristics and to place the commons in the proper context of the property regime. The next chapter looks at the research methods that were employed to find answers to the specific questions of the study.

### 3. RESEARCH METHODOLOGY

#### 3.1. Introduction

As indicated earlier in the problem statement, the tenure arrangements and management of the Austrian Alpine commons is not known in the English literature. It is in this regard that the study seeks to apply Ostrom design principles to comprehend and document the tenure arrangements and management of commons in Tirol, Austria. In order to accomplish the objective of the study, some questions have been raised as outlined in Table 1.1. This chapter therefore explains in details the research design matrix, study area and justification, identification of key informants, data collection methods and method of data analysis.

#### 3.2. Research Design Matrix

The research matrix was designed to help identify specific data requirements and source of data for each stated research question as shown in Table 3.1. Generally, the data required for the study include documents and information on bundle of rights of users of communal pastures, the appropriation and operational rules of the user groups and how user groups relate with municipal authorities.

Table 3.1: Research design matrix

Sub-Objectives	Questions	Data required	Data source	Method of Data collection
To assess the bundle of rights of users of communal pastures and how they are defined	What are the bundles of rights of users of communal pastures and how are they defined?	Documents of bundle of rights of participants	Farmer cooperatives ( owners and Users of commons)	Semi-structure interview
To identify the appropriation rules put in place to regulate the use of communal pastures	What are the appropriation rules put in place to regulate the use of communal pastures?	Documents of appropriation rules	Farmer cooperatives ( owners and Users of commons)	Semi-structure interview
To assess how operational rules are made and modified	How are operational rules made and modified?	How appropriation rules are made and modified	Farmer cooperatives ( owners and Users of commons)	Semi-structure interview
To assess the sanctions put in place to regulate the use of communal pastures and how they are defined/enforced	What punishment/rewards are put in place to regulate the use of communal pastures and how are they defined/enforced?	Punishment/rewards; how are they defined/enforced	Farmer cooperatives ( owners and Users of commons)	Semi-structure interview
To assess whether institutions devised by users of communal pastures are recognized by municipal authorities	Are institutions devised by users of communal pastures recognized by municipal authorities? How are they recognized?	Relationship between Municipal authorities and users of communal pastures and whether their institutions devised are recognized	Farmer cooperatives( owners and Users of commons)	Semi-structure interview

### 3.3. Study Area and Justification for Selection

The Republic of Austria is located in the southern central part of Europe and occupies a territory of approximately 84,000 square kilometres. It is bordered by eight (8) European countries; Germany in the north and Italy in the south. As a federal state, Austria comprised of nine (9) states; Burgenland, Carinthia, Lower Austria, Salzburg, Styria, Tirol (study area), Upper Austria, Vorarlberg and Vienna (Advameg Inc, 2013).

‘Austria has about 70% share of the mountain areas among the Alpine states within the European community and about 52% of farms are situated on mountains’ (Rotherham et al., 2010) . ‘Forest provides a secure source of livelihood to many of the people. The mountains allow visitors to experience and enjoy nature and to recreate especially during the winter seasons; thus the area is well-known for its tourist attraction and a source of income’ (Rotherham et al., 2010).

‘The living condition of the rural society is determined by natural factor like topography, climate, exposure and altitude and also by ownership structures, social factors and demographic evolution. Forest farming, pastures, and alpine pastures are the forms of farming activities on the mountains with skiing as the major activity and more important during the winter season’ (Rotherham et al., 2010).

Tirol, one of the States in Austria was purposively selected due to the availability of a web-based cadastral map which provided information on ‘*Almen*’ (communal grazing pastures). This web-based cadastral map had locations and parcel numbers of the communal grazing pastures. Tirol also has the largest number of commons and ski-tourism in Austria. Figure 3.1 and Figure 3.2 respectively show the location of Municipalities in Tirol that where visited and the digital web-based cadastral map. The red dots are the *Almen* that are above the tree-line and are communally owned by members of the *Agrargemeinschaft (AGM)*. The lines point to the Municipalities visited during fieldwork.

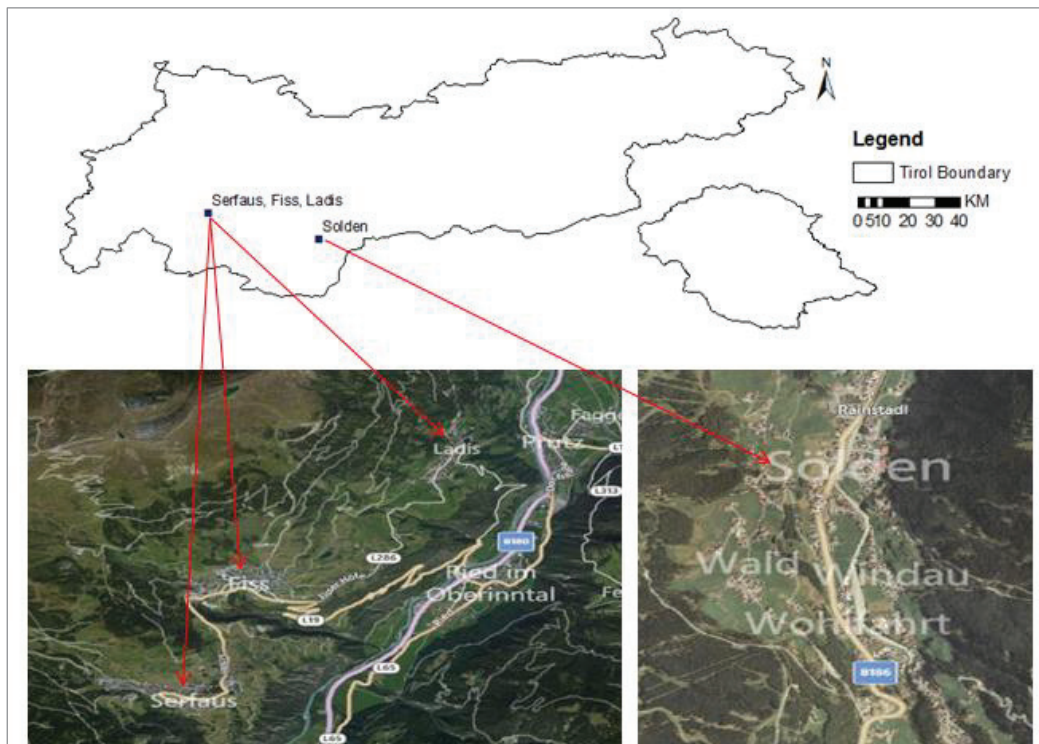


Figure 3.1: Map of Tirol showing Municipalities visited

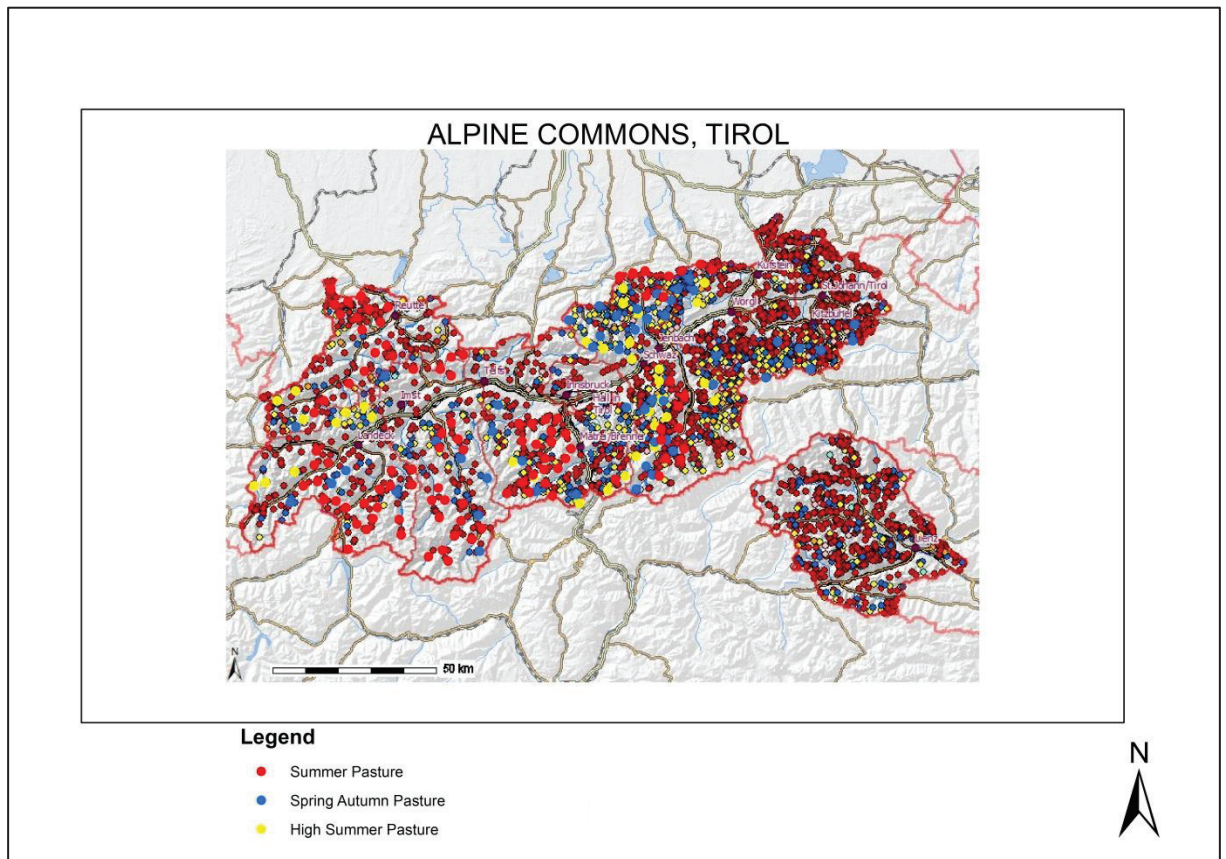


Figure 3.2: Alpine Commons (Communal Pastures) - Tirol, Austria  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

The research centre of Alpine Forechurgs Obergurgl (AFO) also influenced the research choice of Tirol since they had expertise and contact with the AGM. In addition to that, the centre provided the researchers with affordable accommodation and therefore informed the choice of the selection of the Municipalities.

Prior to fieldwork, out of approximately over 2000 ‘Almen’ found in the web-based cadastral map, 20 were selected across the four (4) municipalities of Serfaus-Fiss-Ladis and Sölden (See Appendix C) in order to ascertain if there are differences in the ownership and management of ‘Almen’ among municipalities. Serfaus-Fiss-Ladis were considered because of convenience due to their close geographical locations. Sölden was also included because the research centre of Alpine Forechurgs Obergurgl (AFO) is located in that municipality and as a result data about key informants could easily be obtained.

### 3.4. Identification of Key Informants

Key informants were identified for data collection through a web search. The Chair persons of the ‘Agrargemeinschaft’ (AGM) (Agricultural/Alps Association) of selected *Almen* were identified as key informants. In most cases the name of the chairman of the agricultural community with telephone numbers and addresses were found in this process. The researcher also had a contact person at the University of Innsbruck who gave some addresses of some of the key informants. He also sent out the interview guide to these key informants through their e-mail addresses. In all, 12 key informants were identified. In the Inn-valley, key informants addresses for the Municipalities of Serfaus-Fiss-Ladis were identified on the internet. The AGM chief executive (*Obmann*) of Serfaus was not interviewed because he was unavailable even though he was given notice on the interview schedule. Several calls on his cell phone did not yield any results. The chief executive of Ladis was interviewed but that of Fiss could not be traced.

In the Ötz valley, all contacts were provided by the AFO. The contacts of the Sölden were identified but unavailable in the week of the survey and therefore were not interviewed. Appendix A contains a list of key informants which were identified before fieldwork. During fieldwork, data was elicited from 8 key informants (thus the first eight key informants of Appendix A). The rest were not around during fieldwork.

### **3.5. Data Collection Method- Interview**

Data was collected from key informants (respondents) through a semi-structured interview. Although interview can be time consuming, it was adopted in order to allow for probing and the collection of in-depth information. Data was collected on the ownership, organization and management of the communal grazing lands and other activities such as hunting and skiing within the communal lands. On ownership, the researcher was interested in knowing who was the registered owner of the *Almen* and how the bundle of rights are defined since that was not indicated in the web-based cadastral map. In terms of the organization and management aspect, the researcher was interested in finding out how membership and rules regarding summer grazing are carried out.

Before fieldwork, an interview guide with questions (Appendix E) was prepared and sent to respondents for them to be well prepared for the interview. The interview guide contains both open-ended and close-ended questions. The interview guide was prepared in English and translated into German for the easy understanding of the respondents since most of them preferred to interact in German. As a result, the researcher heavily relied on a translator who doubles as his supervisor to collect information from respondents.

#### **3.5.1. Limitation of the Study**

As with any data collection, there are always risks of inaccuracy and especially with qualitative data. The major limitation in collecting data for this study was language barrier. Interviews were conducted in German but the researcher does not speak nor understand the German language; he therefore dependent on an interpreter to translate information from respondents to him. However, the translator who doubles as the researcher's supervisor is fluent in German and therefore the information gathered is very reliable.

Secondly, the time period for the field work was very limited. The researcher spent six (6) days in field for the data collection. Due to the short fieldwork duration, the researcher could not wait to interview three key informants who were not around during the week of data collection but promised to come the following week. Moreover, in some instances the time length of interview was shortened because interviewees were busy and the researcher too could not go back for a second session.

There was no recording of the interviews for the researcher to later cross check responses he might have not captured well from the translator. Recording was not done due to a professional advice from my supervisor who doubles as my translator that recording can make some respondents uncomfortable in expressing themselves and consequently conceals some vital information. A conference paper presented by Siegl and Schermer (2008) also pointed to fact that there were some conflicts issues with the sharing of revenue in some of the *Almen* in Tirol and therefore, it was not prudent to have recorded these people. Based on the above, the researcher did not use a recorder in all the interviews conducted.

### **3.6. Method of the Analysis**

Data collected from respondents were summarized in a table showing responses of respondents on various issues regarding the ownership and management of the summer grazing pastures (refer to



Appendix B). From this table, a content analysis was done according to the objectives of the study by transcribing the data into text document. The organizational structure of the management of the Alpine Commons, Ownership and management of the Alpine Commons, Rules and Regulations in the Management of the Commons, Sanctions in the Management of the Commons and the how Institutions devised by users of the Commons are Recognized by the Municipal Authorities.

### **3.7. Concluding Remarks**

This chapter has given the path to how the research has been carried to meet the stated objectives of the study. It has spelt out the data requirement, the study area and justification for its selection, how the key informants were identified, the data collection method, and how the data was analysed to meet the stated objectives. It has also identified the limitations of the research.



## 4. PRESENTATION OF RESULTS

### 4.1. Introduction

This chapter presents the results of the study according to the *Almen* that were studied. For each *Alm* (singular of *Almen*), results are presented on its ownership and management, membership, operational rules and sanctions that are put in place. Data is also presented on how the user rights of each *Almen* to organise are recognized by Municipal Authority. The presentation outline relates to the design principles that were stated as the specific objectives and questions of the study (Refer to Table 1.1).

### 4.2. Kippelle-Rotmoos Alm

The Figure 4.1 is a screen shot of the *Kippelle-Rotmoos Alm* taken from the web-based cadastral map. The red part is the *Alm* that was digitized in an Arc map. The name of the *Alm* is indicated with the parcel ID. The *Kippelle-Rotmoos* has a clearly defined boundary.

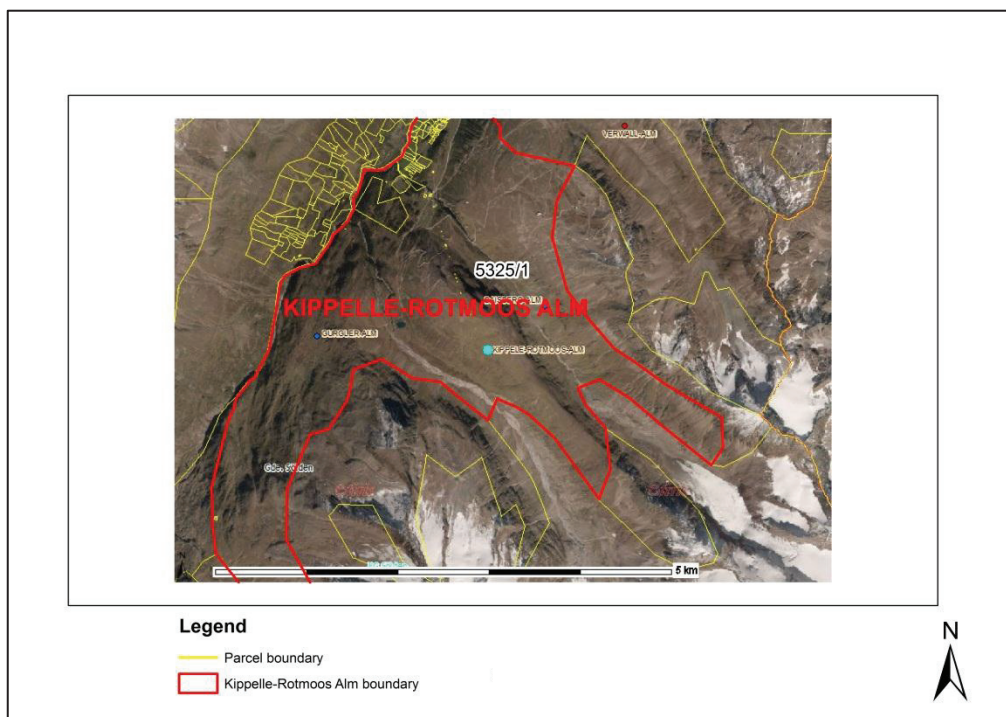


Figure 4.1: A screen Shot of Kippelle-Rotmoos Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.2.1. Ownership and Management

The *Kippelle-Rotmoos Alm* which is in Sölden Municipality is owned by the *AGM* and registered in the land registry with a clearly defined boundary. Each member of the *AGM* has a copy of the registered document where the names of members are listed with each share. The *AGM* manages the *Alm* through an executive body made up of members of the *AGM*. They give lease rights to private companies who put up ski-



infrastructure on the *Alm* for tourists. The revenue accruing from the lease is for the *AGM*; however a share of the revenue is given to the Municipality.

#### 4.2.2. Membership

*Kippele-Rotmoos AGM* is made up of 7 members each having cattle shares in the *Alm*. Possessing a farmstead is a precondition to becoming a member of the *AGM* of *Kippele-Rotmoos Alm*. The farmstead can be acquired through inheritance or purchase from existing members. The chairman of *Kippele-Rotmoos Alm AGM* indicated that, although shares are transferable to both non-members and members of the *AGM* priority is often given to existing members of the *AGM* when a member decides to offload his shares.

#### 4.2.3. Appropriation and Operational Rules

The day to day management of the *Alm* is vested in the hands of an executive committee who are members of the *AGM*. The chairman of the executive committee is elected for five years. He qualifies for re-election at the next election year. Other executive members hold office for two years. Furthermore, annual general meetings are held for decisions to be taken concerning the management of the *Alm*. Proceedings of the meetings and regulations are well documented.

*AGM* members do not have ceilings on the number of animals that can be grazed on the *Alm* except that members are expected to bring the number of animals that they were able to feed during the winter season. There are no herdsmen employed in this *Alm*. Animals move to and fro every day to the *Alm* for grazing. Grazing period during summer depends on the weather condition in the year under consideration. In most years grazing starts in the month of June or July till September. Grazing on the *Alm* always last for least 100 days. However, in situation of bad weather condition (extreme cold) during grazing, the number of days may be less than 100. Members do not pay dues since they have enough finance from the lease of land to skiing companies.

#### 4.2.4. Sanctions

Apart from been suspended from grazing or paying for the additional animal that a member has brought which he did not feed during the winter, no specific sanctions or fines are spelt out for members who may disobey the rules and regulations of the summer grazing. But members rely on the cooperation of each other good behaviour therefore do not have a lot of problems in terms of breaking rules. However, where ever a member goes beyond bounds, he is cautioned and reminded of his promised to cooperate with rules that he has been a part of making. Every member wants to look good and seen as obedient and therefore very rare occasion do you see a member fouling rules.

#### 4.2.5. Recognition of *AGM* rights by Municipal Authorities

The *AGM* of *Kippele-Rotmoos* operate on the legal status of cooperation under public law with its' legal basis been that of customary law. The members of the *AGM* of the *Kippele-Rotmoos* are a self-governing body that is fully recognized by Municipal Authority. The Municipality respects the decisions of *AGM* and rules derived by them are respected as such. Major decisions such as formation or dissolution of the *AGM* are only approved by the '*Agrarbehörde*' which is the supervisory body of the *AGM* and derives it legal basis from the Imperial law of 1883 on separation or regulation of *AGM* for sustainability of the *Alm*.

### 4.3. Angerer Alm

Figure 4.2 is a screen shot of the *Angerer Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Angerer Alm* has clearly defined boundary.

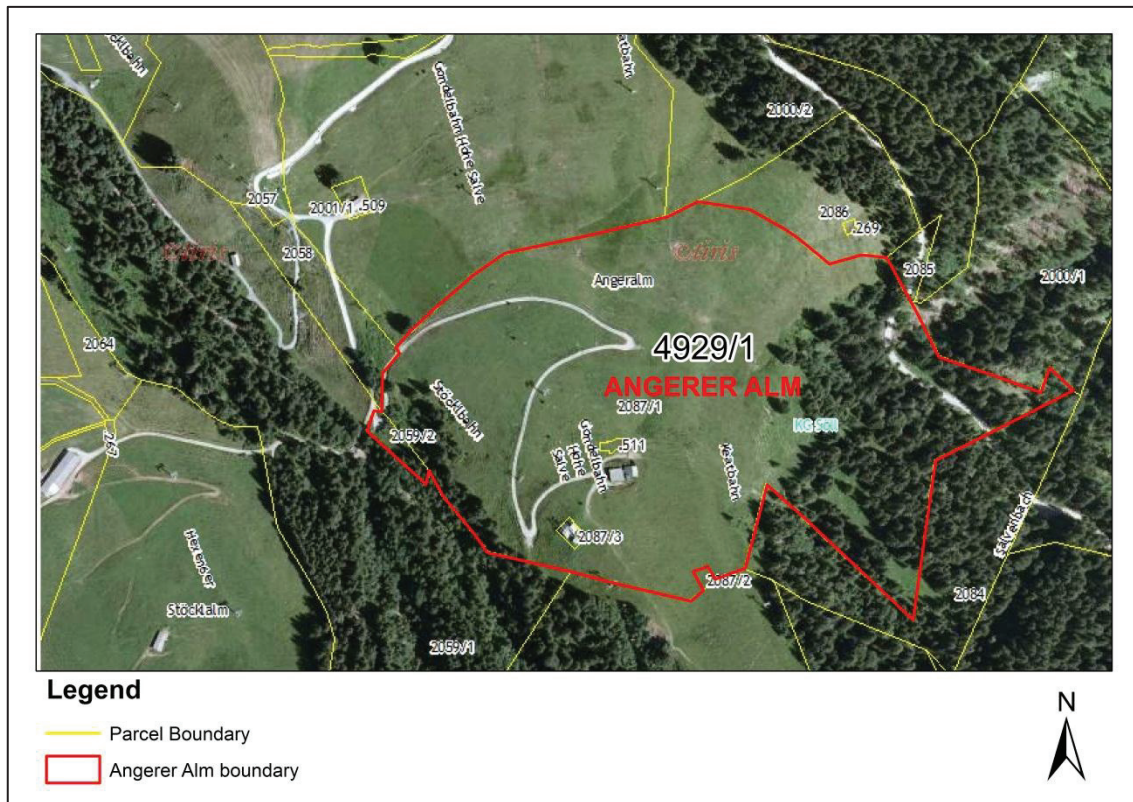


Figure 4.2: A screen shot of the Angerer Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.3.1. Ownership and Management

The *Angerer Alm* in Sölden Municipality is owned by the *AGM* and is registered in the land registry with a clearly defined boundary. Each member of the *AGM* has a copy of the registered document where the names of members are listed with their shares indicated. The *AGM* manages the *Alm* through an executive body made up of members of the *AGM*. They give lease rights to private companies who put up ski-infrastructure on the *Alm* for tourists. The revenue accruing from the lease is for the *AGM*; however a share is given to Municipality.

#### 4.3.2. Membership

*Angerer AGM* is made up of 15 members each having cattle shares in the *Alm*. Possessing a farmstead is a precondition to becoming a member of the *AGM* of *Angerer Alm*. The farmstead can be acquired through inheritance or purchase from existing members. The chairman of *Angerer Alm AGM* indicated that, although shares are transferable to both non-members and members of the *AGM* priority is often given to existing members of the *AGM* when a member decides to offload his shares.

#### 4.3.3. Appropriation and Operational Rules

The day to day management of the *Alm* is vested in the hands of an executive committee who are members of the *AGM*. The chairman of the executive committee is elected for five years. He qualifies for

re-election at the next election year. Other executive members hold office for two years. Furthermore, annual general meetings are held for decisions to be taken concerning the management of the *Alm*. Proceedings of the meetings and regulations are well documented.

*AGM* members do not have ceilings on the number of animals that can be grazed on the *Alm* except that members are expected to bring the number of animals that they were able to feed during the winter season. There are no herdsmen employed in this *Alm*. Animals move to and fro every day to the *Alm* for grazing. Grazing period during summer depends on the weather condition in the year under consideration. In most years grazing starts in the month of June or July till September. Grazing on the *Alm* always last for 100 days. However, in situation of bad weather condition (extreme cold) during grazing, the number of days may be less than 100.

#### **4.3.4. Sanctions**

There is a high sense of cooperation within members of the *Angerer AGM*. Each members respects the grazing rules that they collectively set-up and the sense of good behaviour is one of every member's priority since no one wants to be seen as a black-sheep. However, in the event that a member attempts to bring more livestock than he could feed during the winter, those animals are restricted from grazing on the *Alm*.

#### **4.3.5. Recognition of AGM rights by Municipal Authorities**

The *AGM* of *Angerer Alm* operate on the legal status of cooperation under public law with its' legal basis been that of customary law. The members of the *AGM* of the *Angerer Alm* are a self-governing body that is fully recognized by Municipal Authority. The Municipality respects the decisions of *AGM* and rules derived by them are respected as such. Major decisions such as formation or dissolution of the *AGM* are only approved by the '*Agrarbehörde*' which is the supervisory body of the *AGM* and derives its legal basis from the Imperial law of 1883 on separation or regulation of *AGM* for sustainability of the *Alm*.

#### **4.4. Gaislach Alm**

Figure 4.3 is a screen shot of the *Gaislach Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Gaislach Alm* has clearly defined boundary.

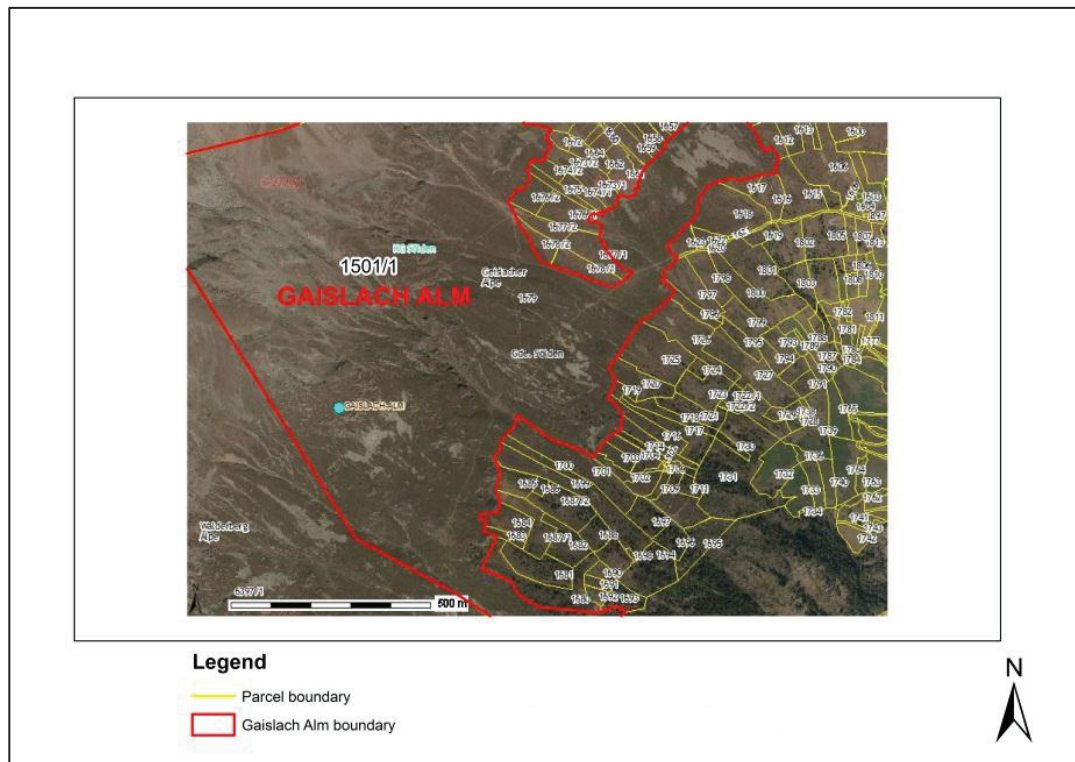


Figure 4.3: A screen shot of the Gaislach Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.4.1. Ownership and Membership

The *Gaislach Alm* is in Sölden Municipality and is owned by the AGM and registered in the land registry with a clearly defined boundary. Each member of the *AGM* has a copy of the registered document where the names of members are listed. The *AGM* manages the *Alm* through an executive body made up of members of the *AGM*. They give lease rights to private companies who put up ski-infrastructure on the *Alm* for tourists. Revenues that accrued from the leases of the *Alm* used to be shared among members, but according to the *AGM* Secretary, revenue has not been share since 2008 because the Municipality is contesting for a share of leased revenues. The secretary further added that out of the 400 *AGMs* in Tirol, the Municipalities are in contest with 240 *AGM*'s for the share of revenues. Twenty four (24) of such cases are in Sölden.

#### 4.4.2. Membership

*Gaislach Alm AGM* is made up of 43 members each having cattle shares in the *Alm*. Processing a farmstead qualifies one to become a member of the *Gaislach Alm AGM*. The farmstead can be acquired through inheritance or purchase from existing members. According to the secretary, although shares are transferable to both non-members and members of the *AGM*, priority is often given to existing members of the *AGM* when a member decides to offload his shares. The Municipality of Sölden is a member of the *Gaislach AGM* with voting rights just as other members of the *AGM*.

#### 4.4.3. Appropriation and Operational Rules

The day to day management of the *Alm* is vested in the hands of a Special Committee composed of herdsmen. The head of this special committee is called an 'Obmann' (translated as herdsman). The *Obmann* appoints members into the Special Committee. The committee decides the starting and end dates of grazing in the summer. The start and end date is flexible depending on the weather condition during the year in question. The Special Committee ensures that each member brings the number of cattle he



possessed as at winter season to the *Alm*. The Special Committee also ensures that every member vaccinates and shows a certificate of vaccination of their livestock before sending them to the *Alm* for grazing as a disease control mechanism.

Aside the Special Committee, there is also an Executive Committee which over sees the activities of the *AGM* in terms of finances and leases of land for other purposes such as ski infrastructure and building of huts. The chairman of the executive committee is elected for five years. He qualifies for re-election at the next election year. Other executive members hold office for two years. Furthermore, annual general meetings are held for decisions to be taken concerning the management of the *Alm*. Proceedings of meetings and regulations are well documented. The Executive Committee is also charged with the responsibility of appointing an 'Obmann' of the Special Committee.

*AGM* members do not have ceilings on the number of animals that can be grazed on the *Alm* except that members are expected to bring the number of animals that they were able to feed during the winter season. There are no herdsmen employed in this *Alm*. Animals move to and fro every day to the *Alm* for grazing. Grazing period during summer depends on the weather condition in the year under consideration. In most years grazing starts in the month of June or July till September. Grazing on the *Alm* always last for 100 days. However, in situation of bad weather condition (extreme cold) during grazing, the number of days may be less than 100.

According to the Secretary, livestock holders in this *AGM* receive subsidy on each animal from the EU while the Agricultural Department of Innsbruck provides technical assistance to livestock holders. The Agricultural Department also gives advice on the grazing activities in the *Alm*.

#### **4.4.4. Sanctions**

There is a high sense of cooperation within members of the *Gaislach AGM*. Each members respects the grazing rules that they collectively set-up and the sense of good behaviour is one of every member's priority since no one wants to be seen as black sheep. However, in the event that a member attempts to bring more livestock than he could feed during the winter, those animals are restricted from grazing on the *Alm*.

#### **4.4.5. Recognition of the AGM rights by the Municipal Authorities**

The *AGM* of *Gaislach Alm* operate on the legal status of cooperation under public law with its' legal basis been that of customary law. The members of the *AGM* of the *Gaislach Alm* are a self-governing body that is fully recognized by Municipal Authority. The Municipality respects the decisions of *AGM* and rules derived by them are respected as such. Major decisions such as formation or dissolution of the *AGM* are only approved by the 'Agrarbehörde' which is the supervisory body of the *AGM* and derives it legal basis from the Imperial law of 1883 on separation or regulation of *AGM* for sustainability of the *Alm*.

### **4.5. Timmeltal Alm**

Figure 4.4 is a screen shot of the *Timmeltal Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Timmeltal Alm* has clearly defined boundary.

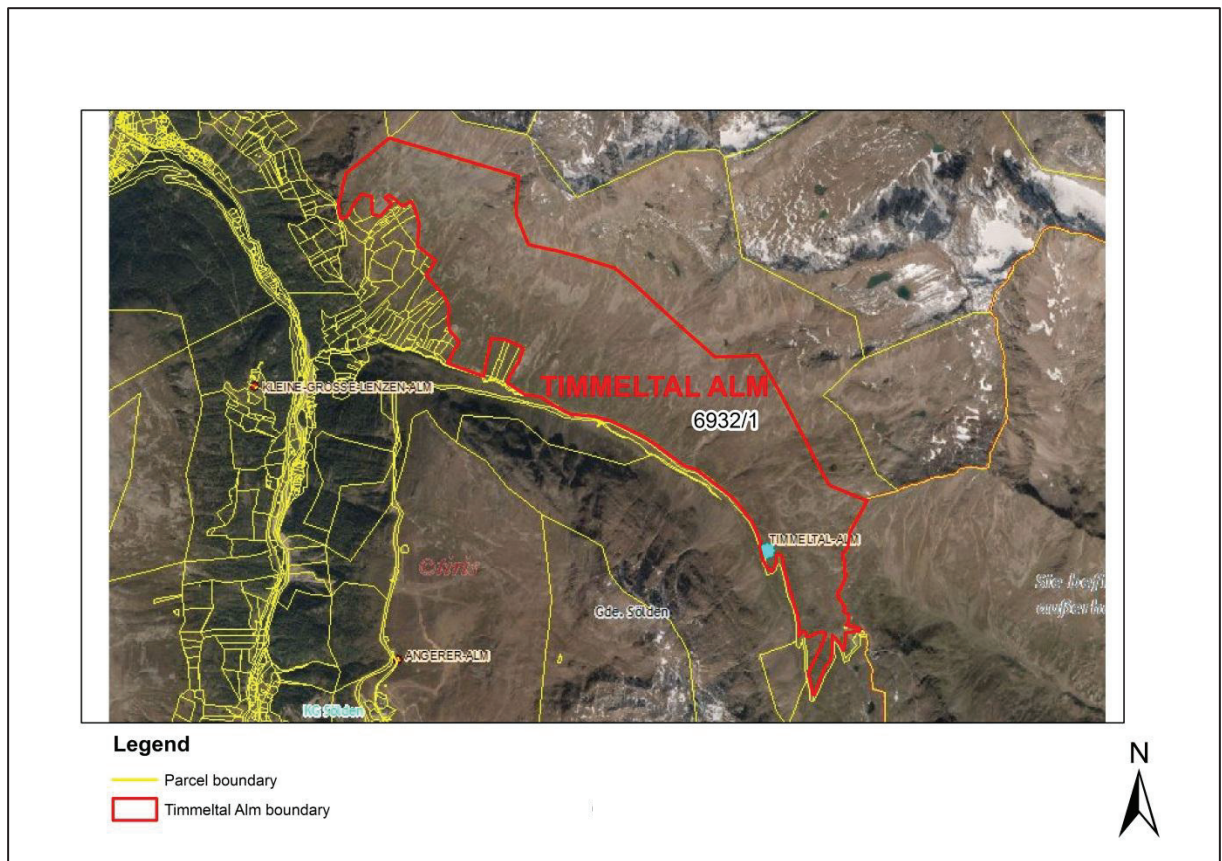


Figure 4.4: A screen Shot of the Timmeltal Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.5.1. Ownership and Management

The *Timmeltal Alm* in Sölden municipality which is owned by the *AGM* is registered in the land registry with a clearly defined boundary. Each member of the *AGM* has a copy of the registered document where the names of members are listed. The *AGM* also owns the forest around the *Alm*. The *AGM* manages the *Alm* through an executive body made up of members of the *AGM*. They give lease rights to private companies who put up ski-infrastructure on the *Alm* for tourists. The revenue accruing from the lease is for the *AGM*. Revenue from hunting lease and ski lease are for the use of the *AGM*. The revenue is not shared out to individual members of *AGM* but it is use to re-invest in the property development. The Municipality has no share in the revenue from this *Alm*. There is also lease of the *Alm* to a neighbouring village with about 600 sheep to graze on the *Alm* during the summer.

#### 4.5.2. Membership

*Timmeltal AGM* is made of 13 members each having cattle shares in the *Alm*. Possessing a farmstead is a precondition to becoming a member of the *AGM* of *Timmeltal Alm*. The farmstead can be acquired through inheritance or purchase from existing members. The chairman of *Timmeltal Alm AGM* indicated that, although shares are transferable to both non-members and members of the *AGM* priority is often given to existing members of the *AGM* when a member decides to offload his shares.

#### 4.5.3. Appropriation and Operational Rules

The day to day management of the *Alm* is vested in the hands of an executive committee who are members of the *AGM*. The chairman of the executive committee is elected for five years. He qualifies for re-election at the next election year. Other executive members hold office for two years. Furthermore, annual general meetings are held for decisions to be taken concerning the management of the *Alm*. Proceedings of meetings and regulations are well documented.

*AGM* members do not have ceilings on the number of animals that can be grazed on the *Alm* except that members are expected to bring the number of animals that they were able to feed during the winter season. In all about 30 cattle are grazed on this *Alm*. The *AGM* employ the services of herdsmen in this *Alm* during summer grazing. Grazing period during summer depends on the weather condition in the year under consideration. In most years grazing starts in the month of June or July till September. Grazing on the *Alm* always last for 100 days. However, in situation of bad weather condition (extreme cold) during grazing, the number of days may be less than 100.

#### 4.5.4. Sanction

There is a high sense of cooperation within members of the *Timmeltal AGM*. Each members respects the grazing rules that they collectively set-up and the sense of good behaviour is one of every member's priority since no one wants to be seen as black sheep. However, in the event that a member attempts to bring more livestock than he could feed during the winter, those animals are restricted from grazing on the *Alm*.

#### 4.5.5. Recognition of the AGM rights by the Municipal Authorities

The *AGM* of *Timmeltal Alm* operate on the legal status of cooperation under public law with its' legal basis been that of customary law. The members of the *AGM* of the *Timmeltal Alm* are a self-governing body that is fully recognized by Municipal Authority. The Municipality respects the decisions of *AGM* and rules derived by them are respected as such. Major decisions such as formation or dissolution of the *AGM* are only approved by the '*Agrarbehörde*' which is the supervisory body of the *AGM* and derives it legal basis from the Imperial law of 1883 on separation or regulation of *AGM* for sustainability of the *Alm*.

#### 4.6. Verwall Alm

Figure 4.5 is a screen shot of the *Verwall Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Verwall Alm* has clearly defined boundary.

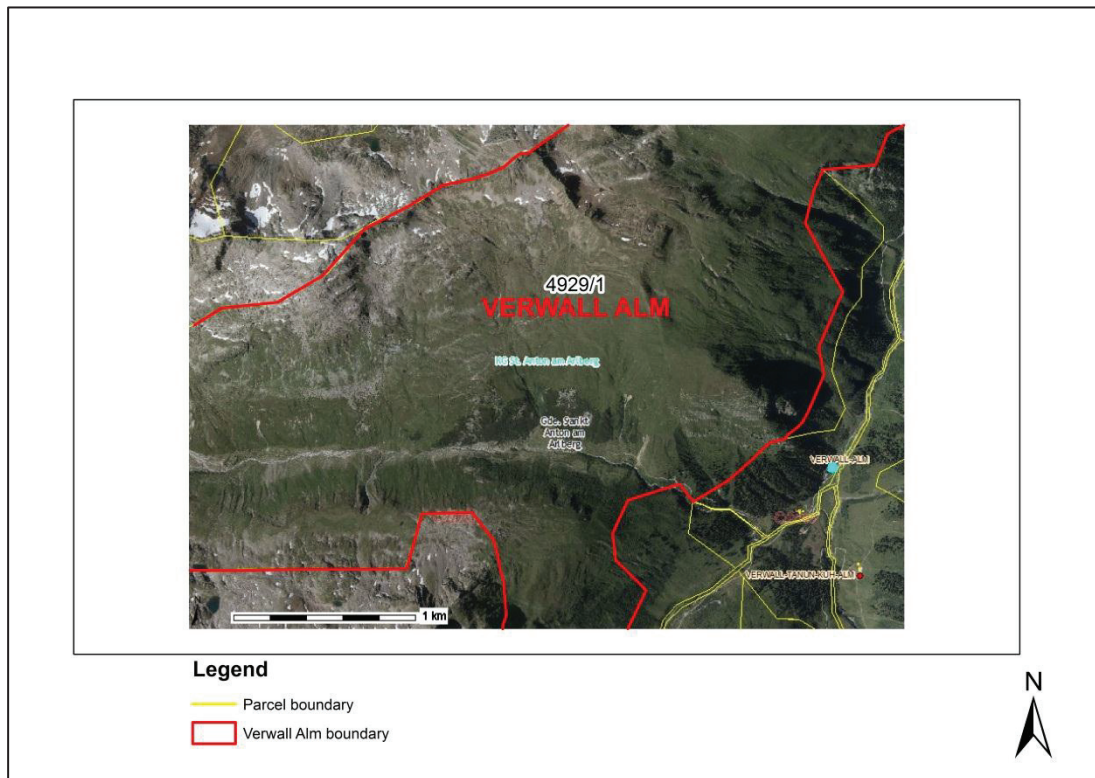


Figure 4.5: A screen shot of the Verwall Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.6.1. Ownership and Management

The *Verwall Alm* in Sölden municipality which is owned by the *AGM* is registered in the land registry with a clearly defined boundary. Each member of the *AGM* has a copy of the registered document where the names of members are listed. The *AGM* manages the *Alm* through an executive body made up of members of the *AGM*. They give lease rights to private companies who put up ski-infrastructure on the *Alm* for tourists. The revenue accruing from the lease of *Alm* is for the *AGM*. Revenue from hunting lease and ski lease are for the use of the *AGM*. The revenue is not shared out to individual members of *AGM* but it is used to re-invest in the property development. The Municipality has no share in the revenue from this *Alm*.

#### 4.6.2. Membership

The *Verwall Alm* is made up of 5 members each having cattle shares in the *Alm*. Possessing a farmstead is a precondition to becoming a member of the *AGM* of *Verwall Alm*. The farmstead can be acquired through inheritance or purchase from existing members. The chairman of *Verwall Alm AGM* indicated that, although shares are transferable to both non-members and members of the *AGM* priority is often given to existing members of the *AGM* when a member decides to offload his shares.

#### 4.6.3. Appropriation and Operational Rules

The day to day management of the *Alm* is vested in the hands of an executive committee who are members of the *AGM*. The chairman of the executive committee is elected for five years. He qualifies for re-election at the next election year. Other executive members hold office for two years. Furthermore, annual general meetings are held for decisions to be taken concerning the management of the *Alm*. Proceedings of meetings and regulations are well documented.



*AGM* members do not have ceilings on the number of animals that can be grazed on the *Alm* except that members are expected to bring the number of animals that they were able to feed during the winter season. In all about 350 to 400 sheep and goats are grazed on this *Alm*. The *AGM* employ the services of herdsmen in this *Alm* during summer grazing. Grazing period during summer depends on the weather condition in the year under consideration. In most years grazing starts in the month of June or July till September. Grazing on the *Alm* always last for 100 days. However, in situation of bad weather condition (extreme cold) during grazing, the number of days may be less than 100.

#### **4.6.4. Sanction**

There is a high sense of cooperation within members of the *Verwall AGM*. Each members respects the grazing rules that they collectively set-up and the sense of good behaviour is one of every member's priority since no one wants to be seen as black sheep. However, in the event that a member attempts to bring more livestock than he could feed during the winter, those animals are restricted from grazing on the *Alm*.

#### **4.6.5. Recognition of AGM rights by the Municipal Authorities**

The *AGM* of *Verwall Alm* operate on the legal status of cooperation under public law with its' legal basis been that of customary law. The members of the *AGM* of the *Verwall Alm* are a self-governing body that is fully recognized by Municipal Authority. The Municipality respects the decisions of *AGM* and rules derived by them are respected as such. Major decisions such as formation or dissolution of the *AGM* are only approved by the 'Agrarbehörde' which is the supervisory body of the *AGM* and derives it legal basis from the Imperial law of 1883 on separation or regulation of *AGM* for sustainability of the *Alm*.

#### **4.7. Komperdell, Kerb, Heuberg and Schildach Almen in Serfaus Municipality**

Results on the ownership, membership, appropriation and operational rules and sanctions put in place in the management of *Komperdell, Kerb, Heuberg* and *Schildach Almen* have been presented together because data was elicited from one respondent (representative of the mayor). Also, the findings were similar. However, were there are differences in the ownership and management of these Almen as mentioned by the respondent, they will be explicitly mentioned.

Figure 4.6 is a screen shot of the *Komperdell Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Komperdell Alm* has clearly defined boundary. The remaining *Almen* are Attached as Appendix.

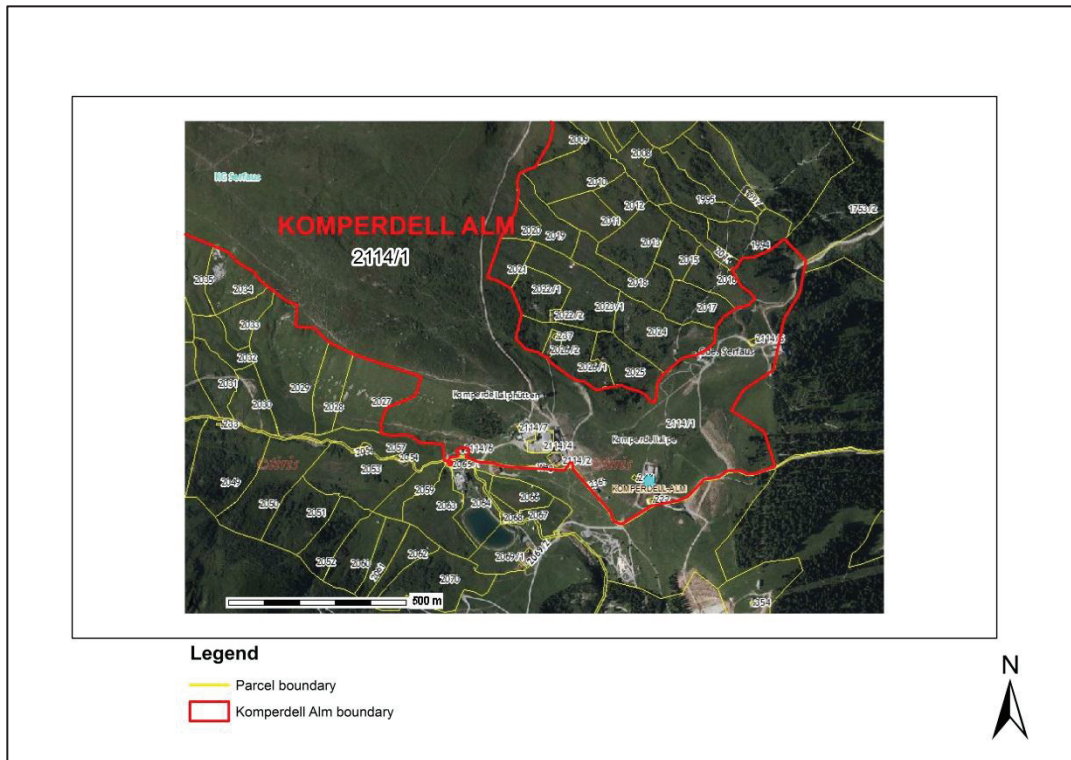


Figure 4.6: A screen shot of the Komperdell Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.7.1. Ownership and Management of the Alm and Forest

The *Komperdell*, *Kerb*, *Heuberg*, and *Schildach Almen* are owned and registered in the Cadastre in name of the Municipality of Serfaus whilst the forest is owned and registered in the name of the *AGM*. The boundaries of the *Alm* are clearly defined, demarcated and known by the Municipality and members of the *AGM*. The Municipality leases out the *Almen* to members of the farm association to graze their livestock during summer. The Municipality is the Executive Board of the *AGM* and takes management decisions on behalf of the *AGM*. However, decisions concerning the management of grazing on the *Almen* are taken by the members of the *AGM* who graze their livestock. Also, the Municipality lease out part of these *Almen* to private companies to put up ski-infrastructure for tourists during the winter. The *AGM* who owns the forest do also give lease rights to persons who want to hunt game in the forest. The *AGM* also lease out parts of the forest to ski companies to erect ski poles for ski lifts. The revenue from these leases is shared with the Municipality.

#### 4.7.2. Membership

There are about seventy (70) members of the *AGM* in the four *Almen* in the Municipality with each member having cattle shares in one of these *Almen*. Data on the membership of each of *Alm* of *AGM* could not be obtained. Possessing a farmstead makes one a member of the *AGM*. The farmstead is acquired through inheritance or purchase from existing members. Information on transferability of shares to non-members of the *AGM* was not available.

#### 4.7.3. Appropriation and Operational Rules

Members of the farm association drive their livestock to the *Almen* during summer for grazing. The number of livestock each member is allowed to send to the *Almen* is determined by the number of livestock he was able to feed during the winter season before that summer. In general, most members

have about 4 to 5 cattle. Only few members have cattle up to 20. For the past years in *Komperdell Alm*, about 200 cows have often been sent for grazing.

In each *Alm*, about eight (8) herdsmen are employed by the *AGM* to take care of the livestock during the summer grazing period. In *Komperdell Alm*, cheese is made during this period of communal grazing and shared according to the number of livestock each member has. Revenue accruing from the lease of the *Almen* is given to the Municipality as the owner of the *Almen*.

#### **4.7.4. Sanction**

If it is found that a member has brought more animals either than what he was able to feed during the winter, the additional cattle is prevented from going to the *Almen* or the member is fined for the additional cattle. There is however a high sense of cooperation within members of the *AGM*. Each members respects the grazing rules that they collectively set-up and the sense of good behaviour is one of every member's priority since no one wants to be seen as the black sheep.

#### **4.7.5. Recognition of AGM rights by the Municipal Authorities**

Though the Municipality of Serfaus owns all the *Almen* in the Municipality, the *AGM* is given the free will to set up their own rules (by-laws) to regulate and organise summer grazing on these *Almen*. The Municipality also engages member of the *AGM* in the general discussion on the management of the *Almen*. The Municipality do not only recognizes the rights of the *AGM* to derive their own rules but she also gives subsidy to members of the *AGM* who graze on these *Almen*.

#### **4.8. Platzoer, Schoengamp and Wanne Almen in Fiss Municipality**

These *Almen* will be discuss under one heading because one respondent from the Municipality of Fiss answered questions concerning the ownership, membership, appropriation and operational rules, and sanctions about them. However, where ever there are specifics on any of the *Alm* under discussion that will explicitly be indicated.

Figure 4.7 is a screen shot of the *Platzoer Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Platzoer Alm* has clearly defined boundary. The remaining *Almen* are attached as Appendix

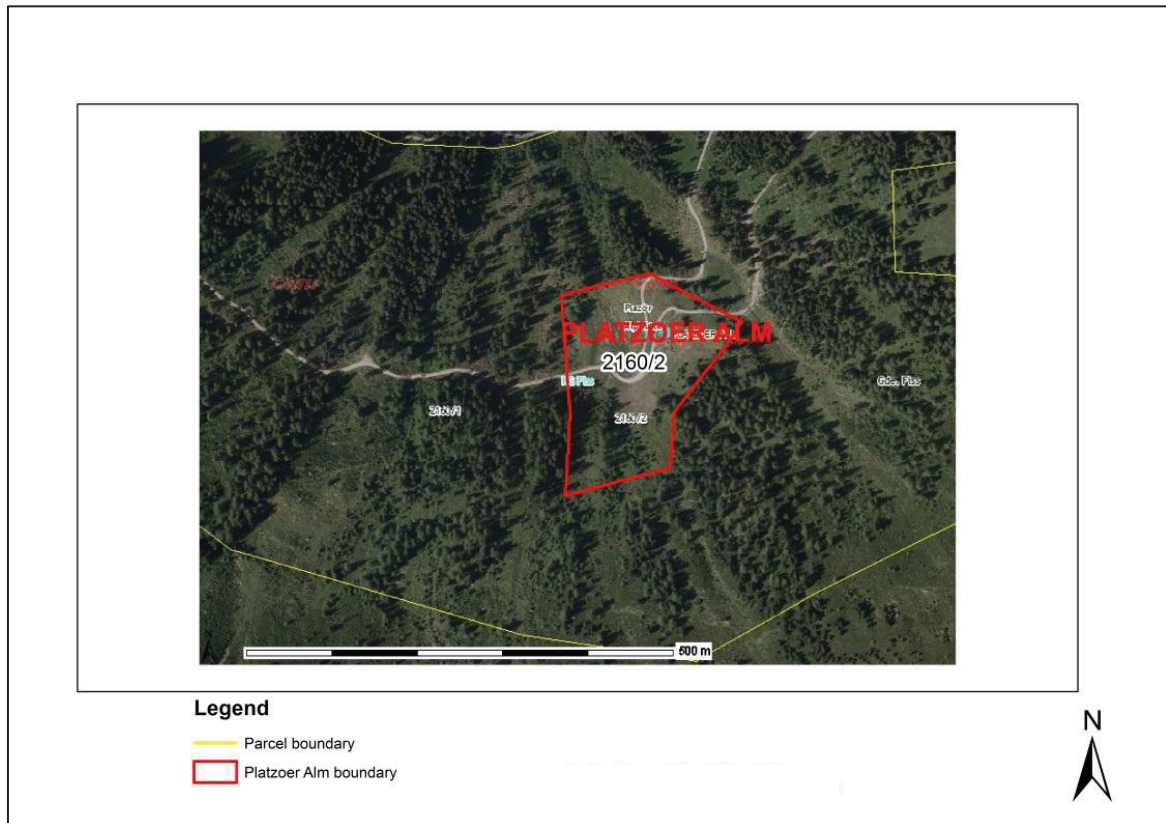


Figure 4.7: A screen shot of the Platzoer Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.8.1. Ownership and Management of the Alm and Forest

The *Platzoer*, *Schoengamp*, and *Wane Almen* together occupy a total land area of 200 ha. These *Almen* are owned and registered in the Cadastre in name of the Municipality of Fiss while the forest is owned and registered in the name of the *AGM*. The boundaries of the *Alm* are clearly defined, demarcated and known by both the Municipality and also members of the farm association (*AGM*). The Municipality leases out the *Almen* to members of the farm association to graze on their livestock during summer. The Municipality is the Executive Board of the ‘*Agrargemeinschaft*’ (farm Association) and takes management decisions on behalf the *Agrargemeinschaft*. However, decisions concerning the management of grazing in the *Almen* are taken by pasture cooperatives that make up members of the *AGM* who graze their livestock on the *Almen*. Also, the Municipality lease out part of these *Almen* to private companies to put up ski-infrastructure for tourists during the winter.

The *AGM* who owns the forest do also give lease rights to persons who want to hunt game in the forest. The *AGM* also lease out parts of the forest to ski companies to erect ski poles for ski lifts. The revenue from these leases is shared with the Municipality.

#### 4.8.2. Membership

There are about forty (40) members of the *AGM* in the whole of the Fiss Municipality with each member having cattle shares in one of these *Almen*. To qualify as a member of an *AGM*, a person must have a farmstead. The farmstead is acquired through inheritance or purchase from existing members. Information on transferability of shares to non-members of the *AGM* was not available.

#### 4.8.3. Appropriation and Operational Rules

Members of the farm association drive their livestock to *Almen* during summer for grazing. The number of livestock each member is allowed to send to the *Almen* is based on the number of livestock he was able to feed during the winter season before that summer. In general, about 130 cattle are grazed on these *Almen*.

Four herdsmen are employed by the *AGM* to take care of the livestock during the summer grazing period. Cows are milked during this period of grazing however; cheese is not produced in these *Almen*. The Municipality as an Executive Board of the *AGM* is also part of the decision making process in the smooth management of the *Almen*. Revenue accruing from the lease of the *Alm* is given to the Municipality as the owner of the *Alm*.

#### 4.8.4. Sanction

Before the livestock is sent to the *Almen* for grazing, the herdsmen count the number of cattle each *AGM* has brought and cross check to ascertain the number of livestock the member was able to feed during the winter. If it is found out that a member has brought more animals than what he was able to feed during the winter, the additional cattle is prevented from going to the *Almen* or the member is fined some cash payment for the additional cattle. There is however a high sense of cooperation within members of the *AGM* and therefore it is not common to find members trying to cheat.

#### 4.8.5. Recognition of *AGM* rights by Municipal Authorities

Though the Municipality of Serfaus owns all the *Almen* in the Municipality, the *AGM* is given the free will to set up their own rules (by-laws) to regulate and organise summer grazing on these *Almen*. The Municipality also engages member of the *AGM* in the general discussion on the management of the *Almen*. The Municipality do not only recognizes the rights of the *AGM* to derive their own rules but she also gives subsidy to members of the *AGM* who graze on these *Almen*.

#### 4.9. Lader-Urgl Alm of Ladis Municipality (but is located within the Cadastral Municipality of Fiss)

Figure 4.8 is a screen shot of the *Lader-Urgl Alm* taken from the web-based cadastral map. It has the name of the *Alm* and the parcel ID indicated in the map. The *Lader-Urgl Alm* is within the cadastral Municipality of Fiss, but it is managed by the *AGM* of Ladis. *The Lader-Urgl Alm* has clearly defined boundary.



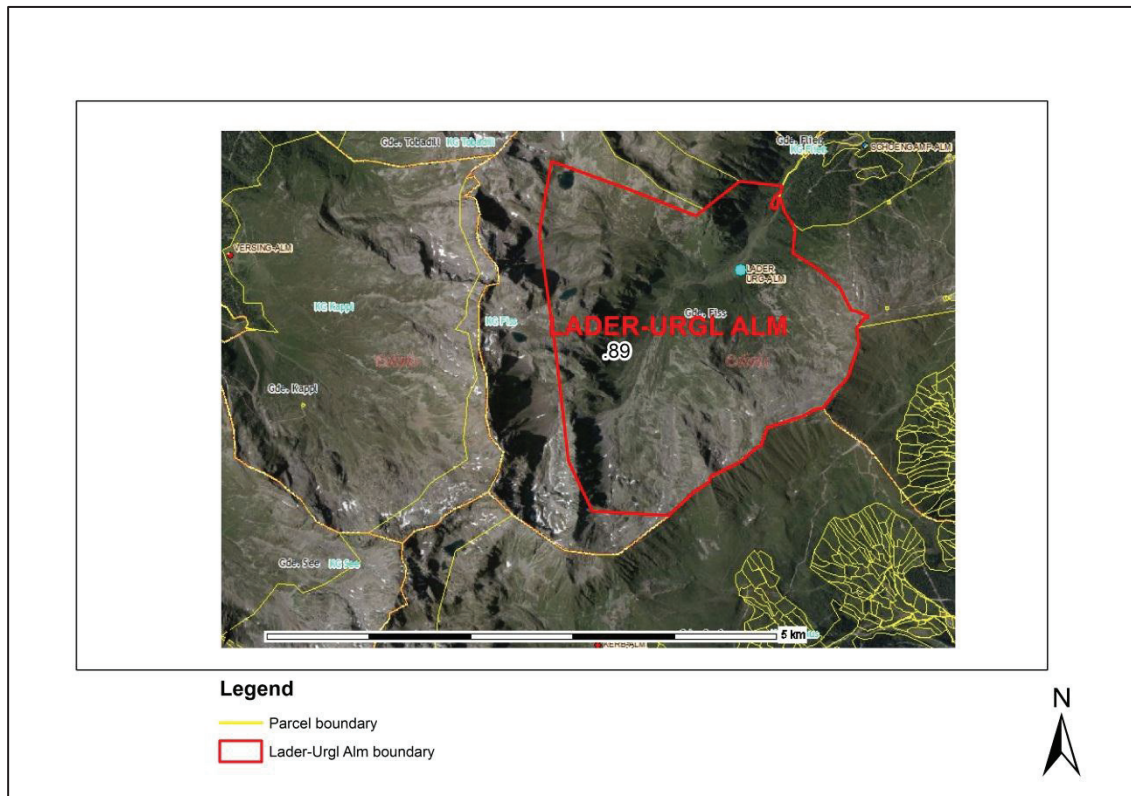


Figure 4.8: A screen shot of Lader-Urgl Alm  
Tiris and Bundesamt für Eich- und Vermessungswesen (2013)

#### 4.9.1. Ownership and Management of the Alm and Forest

The *Lader-Urgl Alm* is owned and registered in the Cadastre in name of the Municipality of Ladis whiles the forest is owned and registered in the name of the *AGM*. The boundaries of the *Alm* are clearly defined, demarcated and known by both the Municipality and members of the (*AGM*). The Municipality has leased out this *Alm* to the chairman of the *AGM*. He manages this *Alm*. He has fenced the *Alm* with mobile electric fence. The *AGM* who owns the forest also give lease rights to persons who want to hunt game in the forest. The revenue from these leases is shared with the Municipality.

#### 4.9.2. Membership

There are sixty-seven (67) members of the *AGM* in the whole of the Ladis Municipality. Membership of the *AGM* is through inheritance. The school, church and Municipality are also members of the *AGM*.

#### 4.9.3. Appropriation and operational Rules

This *Alm* has about 100 cattle that are grazed during summer. The Chairman of the *AGM* owns 41 cattle whilst the remaining belongs to other members of the *AGM*. Since the *Alm* is fenced, therefore, there are no herdsmen employed. Information on the number of livestock that are sent to *Alm* was not readily available.

In terms of the harvest from the forest, wood has been categorized into wood for firewood and wood for timber. During the year, the wood that is to be harvested is marked and a trending machine is used to cut down the wood. The wood is transported to a defined location where the wood is grouped into lots and each member of the *AGM* takes a share of the wood. Members only pay for the use of the trending machine. There is an upper limit set by the EU through Forestry Department of Tirol on how much forest is to be harvested each year.

#### 4.9.4. Sanction

Information on sanction was not made available.

#### 4.9.5. Recognition of AGM rights by the Municipal Authorities

Though the Municipality of Ladis owns the *Lader-Urgl Alm*, the *AGM* is given the free will to set up their own rules (by-laws) in the management of summer grazing. With regards to the forest management, the Municipality only makes contribution as a member of the *AGM*. All decisions taken by the *AGM* are respected and recognized by the Municipality as such.

#### 4.10. Concluding Remarks

This chapter have looked at the results of the interviews that were conducted during field work. It has presented the tenure arrangement and management of the communal pastures in this case the Alpine commons. Form the result, the registered owner of the *Almen* is the major difference between the 4 Municipalities studied. Three of the Municipalities (Serfaus- Fiss- Ladis) are the registered owners of the Alpine Pastures within their jurisdiction while that of the Forest is owned and registered in the name of the *AGM*. The organization of the summer grazing is largely the responsibility of the *AGM*. In Sölden however, both the registered owner and management of the *Almen* are in the name of the various *AGM* of the *Almen*.

The results as presented are indicative of the applicability of the design principles that have been tested in the study area. The next chapter gives a detail discussion of the results in accordance to the stated objectives.



## 5. DISCUSSION OF RESULTS

### 5.1. Introduction

This chapter discusses the results of the study presented in Chapter 4. The discussion is put into five main sections in line with the objectives of the study. These sections include bundle of rights of users of communal pastures, appropriation rules in the use of communal pastures, operational rules in the use of communal pastures, sanctions and recognition of user rights by the municipal authorities.

### 5.2. Bundle of Rights of Users of Communal Pastures

In the 13 *Almen* that were selected and interview conducted, there was a clear definition of the bundle of rights associated to the ownership and use of the *Almen*. Figure 5.1 is a conceptual model describing the land-people relationship as in the Universal Modelling Language (UML) which is inspired by the Land Administration Domain Model (LADM). Even though the model is not intended to be implemented in this study, it is aimed to give a clear picture of how the various entities (Municipality, *Agrargemeinschaft*, and Private Company) relate to the Alpine Commons and Forest.

Figures 5.2 and 5.3 show the subject (Legal Entity)-Land rights- Alpine resources relation in Sölden and Serfaus-Fiss-Ladis Municipalities respectively. In Figure 5.2 the *Agrargemeinschaft (AGM)* is the registered owner of all the *Almen* in the Sölden Municipality. The *AGM* as the registered owner of the *Almen* manages the *Almen*. The *AGM* gives use rights in the form of a lease to local Private Companies within the Municipality to use the *Almen* during the winter season for skiing and touristic activities. Even though there is a contested case in the sharing of revenue as mentioned in the interview with the Secretary of the *Gaislach AGM* (Refer to section 4.4.1), the ownership of the *Gaislach Alm* is registered in the name of the *AGM*.

In Figure 5.2, however, there is a striking difference in the ownership of the *Almen* in the Serfaus-Fiss-Ladis Municipalities. All the Alpine pastures in these Municipalities are owned and registered in the name of the respective Municipalities. The difference in the ownership of the Alpine pasture in these Municipalities could be that, the ownership of the *Almen* were not transferred to the *AGM* as is in the case of the Sölden Municipality. Notwithstanding, this striking difference, the management of the summer grazing in the *Almen* in these Municipalities is well organized and livestock holders have access to the *Almen* for grazing. The forest however, are owned and registered in the name of the *AGM*. The Municipality leases out the *Almen* to the *AGM* to graze their livestock during the summer period whilst use rights is also given to private companies who operate skiing activities on the *Almen* during the winter season after the grazing of the livestock is over. The *AGMs* who own the forest also lease out the forest to hunters who wish to hunt in the forest. They also lease out parts of the forest to private companies to erect ski-lift poles to the *Almen*-thus generating revenue from these leases.

The applicability of clearly defined boundaries and users of common pool resources as proposed by the first principle of Ostrom is consistent with the findings of the study. Each *Almen* has a defined group of users and the boundaries of the *Almen* have been demarcated too. So the users of the *Almen* know the

boundary limit of *Almen*. They know who is qualified to use the *Almen* for grazing and for the establishment of ski-infrastructure and therefore, exclusivity is possible in these *Almen*.

Membership in all the *AGM* studied is through inheritance of a farmstead and therefore the system is a much closed type. Even in situations where cattle share is transferable, priority is given to existing members of the *AGM* thus making it difficult for non-members to become members of the *AGM*.

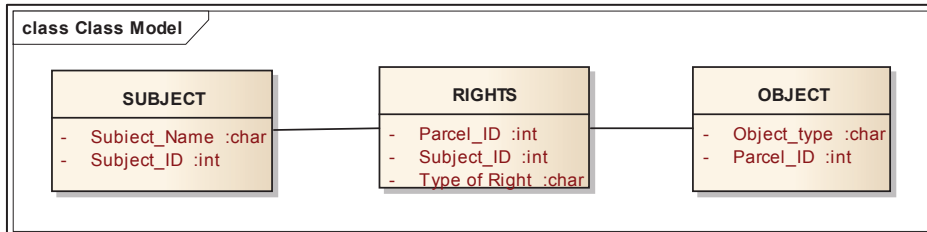


Figure 5.1: Conceptual model showing the relationship between users of the Alpine Commons

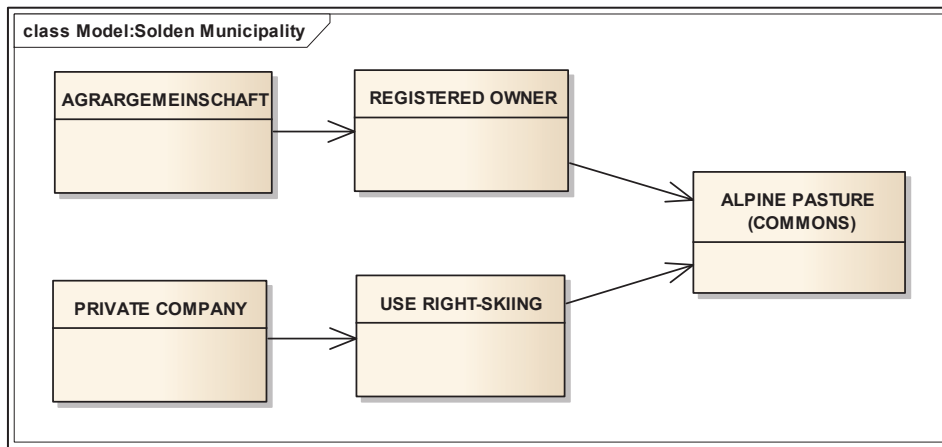


Figure 5.2: Subject (Legal Entity) - Land right- Alpine resource relation in Sölden Municipality

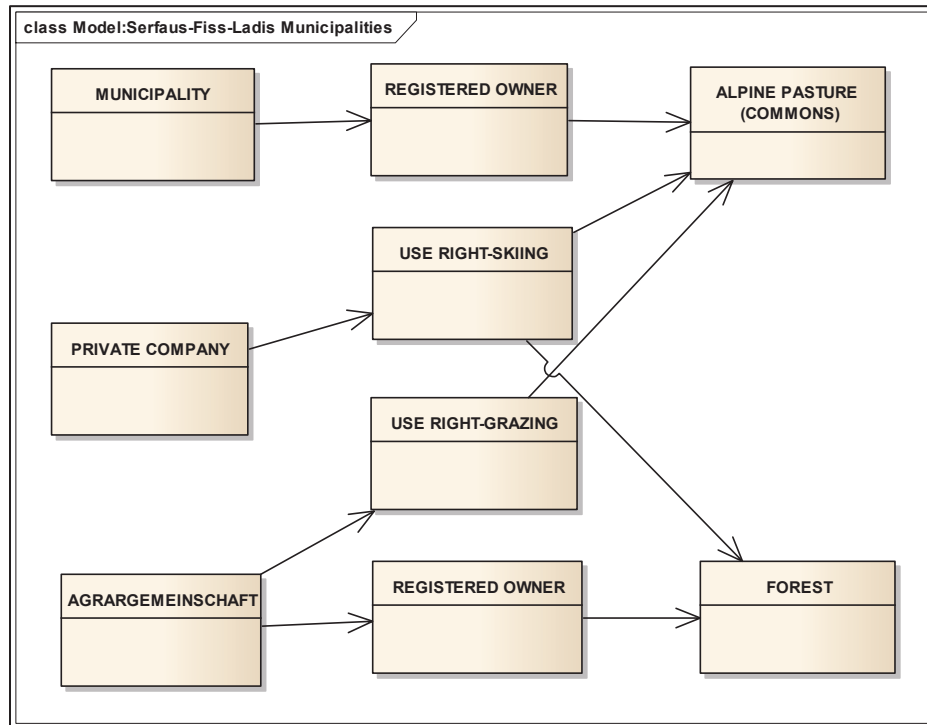


Figure 5.3: Subject (Legal Entity) - Land rights- Alpine resources relation in Serfaus-Fiss-Ladis Municipalities

### 5.3. Appropriation Rules in the Use of Communal Pasture

The appropriation rules in the use of the Alpine pasture as presented in chapter 4 indicate that there is shared norms which are in congruence to the culture of the user group where livestock holders all keep their livestock in the farmstead during the winter season and only send them to the Alpine pasture during the summer season at an agreed date and time.

There is also congruence with the local ecology in that, grazing on the Alpine pasture is only possible during the summer period and so each livestock holder is expected to keep his livestock in the farmstead or graze them on their private ranches until the summer period where all will drive their livestock to the Alpine pasture. In terms of congruence to the benefit and cost, each livestock holder has the benefit of grazing the number of animals he is able to feed during the winter. This is to ensure that members do not cheat others. Thus each member of the *AGM* has the benefit of grazing his animal during the summer season. The appropriation rule is also in agreement with the local ecology. That is to say, communal grazing is done in the summer which is the time where the weather is conducive for animals to stay outside the farmstead. During this time too, the grasses are available for the animals to graze.

The revenue of the lease of the *Almen* in the case of Serfaus-Fiss-Ladis is given to the Municipalities who are the owners of the *Almen* whilst the revenue from the forest is given to the *AGM* who share it with the Municipality. It was not clear what percentage share of revenue from the lease of the forest is given to the Municipality but it is clear that the Municipalities are also members of the *AGM*. The sharing or distribution of the harvested wood is done in such a way that there is no indiscriminate felling of trees. Each member of the *AGM* makes contribution to the use of trending machine that is used to cut down the tress. The wood is then put into lots were each member comes to pick his share of the wood. Thus distribution of the benefits is considered to be transparent since the lots are displayed for every member to see the quantity each person takes.

In Sölden the benefits from the leases of the *Almen* are shared to members in the *AGM* according to each one shares in the *Almen*; this is particularly so in the *Gaislach AGM* however, the sharing of the revenue in this *Alm* has been put on hold because of the contested case with the Municipality on how to share the revenue. Generally, most of the informant especially those from the Sölden Municipality are of the view that the revenue generated from the lease of the *Almen* should not be shared among individual members but rather it should be used in the development of the *Almen* and village as a whole.

### 5.4. Operational Rule in the use of Communal pasture

Every *Alm* has an *AGM* where executive members are elected for two years in office. The chairman of the *AGM* is elected during the annual meeting of the *AGM* and holds a term of five years in office. He eligible for re-election after his term expires. Decision on the management and finances are made by all members of the *AGM*. The *AGM* have defined rules, and regulations in the management of the commons in each *Almen*. These rules and regulations were put place by all members of the *AGM*- every member is aware of these rules and regulations. The operational rules are legitimized by the *Agrarbehörde* who is the supervisory body of the *Agrargemeinschaften* under the legal basis of Customary law (Refer to Figure 2.2 section 2.7). These rules are further documented in the regulation plan of each *AGM*. Appendix D is a translated version of a regulation plan of the *Timmeltal Alm* courtesy Hans van Gils. In this regulation plans are names of members of the *AGM* with their various shares written down. Also the rules of managing the *Alm* are indicated.

There are clear rules and regulations regarding the number of livestock each member is to send to the *Alm* for grazing during the summer period. Each member sends the number of livestock that he can feed during the winter season. This rule is to check that members do not send more animals than they can feed during winter and it also checks the issue of overgrazing in the *Alm*. In some *AGM*, they do not appoint herdsmen as is in the general frame of the *AGM* in Austria as shown in Figure 2.2 but livestock are sent to *Almen* on daily basis. This is particularly so in *Kippele-Rotmoos* and *Angerer Almen* (Refer to Appendix B.) where livestock are sent to the *Almen* on daily bases to and fro.

With the exception of *Verwall Alm*, *AGM* members do not pay membership dues for the management and maintenance of the *Alm*. Revenue accrued from the lease of the *Alm* from skiing and hunting in the forest is used for the maintenance of the *Alm*. Until now, the revenue was shared among members of the *AGM* according to the shares of each member. The decision not to share revenue to individual members of the *AGM* is to use the revenue for development of the whole community such as building of roads.

In the Sölden Municipality, the *AGM* have general meetings where the operational rules regulating the use of the *Almen* are collectively decided by all member of the *AGM*. It was these in general meetings, the Executive Committee members are always elected to serve a term of two years. The Chairman however has five years to serve and eligible for re-election after the five years. The decision-making process in these *AGM* is participatory since every member is required to be in these meetings. They therefore have a collective-choice agreement in the management of the *Almen*. The situation in Serfaus-Fiss-Ladis is quite not informative as to how collective choice-arrangement is made. There was no much information from the interviewees. It was found out that Municipalities are the Executive board of the *AGM* in Serfaus-Fiss-Ladis and made most decisions concerning the lease of the *Almen*.

### 5.5. Sanctions put in place enforce the Operational

Some of the *Almen* visited have no sanctions put in place in the management of Alpine pastures; where sanctions existed, they were basically in the form of caution when a member breaks an operational rule. In situations whereby the number of cattle a member brings exceeds what he possesses during winter, the additional livestock are restricted from grazing. Also, in some cases members caught with additional livestock are fined. Even though these sanctions are put in place, there was no evidence of a case example where a member had undergone such sanctions. This is so because no member has ever tried to go contrary to the rules established. It is worth noting that in all the *Almen* that were interviewed, they indicated that cooperation among members was very high and they rarely experience members trying to cheat by adding more animals to graze during the summer.

Generally, there was a great sense of cooperation among members who graze on the *Almen*. The sense of high cooperation among members of the *AGM* could be attributed to the close relations of members within the *AGM*. It was observed that, most members of each *AGM* came from the same hamlet with family ties. The members live together and knew how much livestock each member possesses in his farmstead therefore no member would want to be seen as disobedient or non-cooperative member within his *AGM*. Also, membership of the *AGM* can be said to be close system because of the way shares of membership is transferred. In most of the cases, membership to *AGM* was through inheritance of a farmstead and so it is very difficult to admit new members who are totally strangers and have just settled in the Hamlet. In some of the responses of the respondents, even though it was stated that shares could

be bought in the *AGM*, it was mostly the case that priority was given to existing members of the *AGM*. This therefore, made it very difficult to admit members who are outside the indigenous group of settlers.

### **5.6. Recognized User Rights by the Municipal Authorities**

In *Almen* where Municipalities are not the registered owners, rules and regulations made by owners are recognized by the Municipality. For instance, in Sölden Municipality where all *Almen* are owned by the *AGM* (Figure 5.2), by-laws enacted by the *AGM* are supported and recognized by the Municipality.

In Sölden Municipality, the rules and decisions taken by the *AGM* in their annual general meetings are also duly recognized by the Municipality. In most of the interviews conducted, respondent indicated that the Municipality do give recognition of the operations of the *AGM*. Apart from the case of *Gaislach Alm* where there is contest in the sharing of the reveune of the *Almen*, the rights of the *AGM* to devise their own institutions(rules of the operation) are not challenged by the Municipal Authorities. Thus design principle 7 is applicable in this study.

Also in all Municipalities, *AGMs* decide the number of animals that are to be grazed by each member of the *AGM*, cheese production and sharing agreements are all duly recognized by the Municipal Authorities concern. The decision on the felling of tress in the forest and how the distribution of forest wood is to be shared are taken by the *AGM* and the Municipal Authorities do give recognition to the *AGM* decisions for the management of the forest.

### **5.7. Concluding Remarks**

Genernally, the principles that were tested in the study area conform to what Ostrom has suggested in the management of the common pool resources. In addition, institutional norms are strongly rooted in these *AGM* most probally due to the close nature of these *AGMs* and the relatively small size of number of members in the *AGM*. The success of these *AGMs* to manage these *Almen* could also be attributed to the nature of the *Alps*- they are ecologically and economically unfavourable to sub-divide into individual parecls as indicated in section 2.7 hence members in a way find it reasonable to cooperate. Also, the nature of the *Alps* make it difficult if not impossible for crop cultivation and thus the issue of competing rights with sedentary crop farmers is absent.

It is also worth noting that these commons are not only used as grazing lands but there is substantial capital investments in infrastructures such as hotels, hostels and ski-infrastructure are established in and around these communally owned pastures in both valleys.



## 6. CONCLUSION AND RECOMMENDATION

### 6.1. Introduction

This chapter presents the conclusion of the whole study by giving a summary of the main findings according to the study objectives as discussed. It also makes recommendation of the study in connection with the findings and further research topics of the study.

#### 6.1.1. Objective 1: To assess the bundle of rights of users of communal pastures and how they are defined

Under this objective, it was found out that various user groups of the communal pasture have different type of rights associated to the use of the pasture. Principal entities in the use of the pasture included the *AGM*, Municipalities, and Private Companies. In the Inn valley (Serfaus-Fiss-Ladis) the ownership of the communal pastures are registered in the name of the Municipalities whilst in the Ötz valley, ownership of the Communal pastures are registered in the *AGM*.

In either valley, there are registered owners of the *Almen* and other people have use rights to these pastures. Private Companies in the two have valleys have the use rights in the form of leases to the communal pasture for skiing and touristic activities. Members of the *AGM* in Serfaus-Fiss-Ladis Municipalities also have use rights to Pastures in these Municipalities.

The membership of each user group is clearly defined. Generally, membership to the *AGM* is through inheritance of a farmstead or the purchase of cattle shares in the particular Alpine pasture.

#### 6.1.2. Objective 2: To identify the appropriation rules put in place to regulate the use of communal pastures

There is a defined way of how the communal pasture is used. Apart from the grazing which is organized only during the summer, skiing and touristic activities are undertaken mostly in the winter season. All members of the *AGM* who use the common pasture have equal rights to send their livestock to the *Almen*. The number of livestock a member of the *AGM* sends to the *Almen* for grazing during summer period depends on the number of livestock he could feed during the winter period.

Grazing on the commons is only during summer which is in congruence to the local ecological condition. Members of the *AGM* can only send livestock that they were able to feed during the winter season. Grazing on the common start on set date and all livestock are driven to the *Alm* on the same day.

#### 6.1.3. Objective 3: To assess how operational rules are made and modified

Operational rules in the governing of the use of the common are made by all members of the *AGM*. During the annual general meetings, members collectively take decision that concerns the management of the common. A review of the past year is made and election of executive members is conducted.

#### 6.1.4. Objective 4: To assess the sanctions put in place to regulate the use of communal pastures and how they are defined/enforced

Members of the *AGM* have put in place defined rules regulating the use of the communal pasture. In the event that a member tries to go against these rules, the member is cautioned for the first time. Secondly, the member is restricted from grazing in the communal pasture with the extra livestock he has brought to



graze which he did not feed during the winter and thirdly, the member is fined for the extra livestock he has brought to graze on the communal pasture.

#### **6.1.5. Objective 5: To assess whether institutions devised by users of communal pastures are recognized by Municipal Authorities**

The operation of the AGM in the management of the communal pasture in Tirol has been a self-governing institution where members of the various *Almen* are given the opportunity to devise their own rules that govern the management of the communal pastures. Since the institutionalization of the management of the communal pastures in the hands of the *AGM*, in 1853, the Municipalities of the political authorities have recognized the existence of the *AGM* and have respected the rules that they make in order to manage the commons.

### **6.2. Conclusion**

The main objective of this study was to comprehend, analyse and evaluate the applicability of Elinor Ostrom (1990) eight design principles of long-enduring CPR in the management of communal pastures in Tirol. Five out of the eight design principle were coined into sub- objectives as: (1) To assess the bundle of rights of users of communal pastures and how they are defined (2) To identify the appropriation rules put in place to regulate the use of communal pastures (3) To assess how operational rules are made and modified (4) To assess the sanctions put in place to regulate the use of communal pastures and how they are defined/enforced (5) To assess whether institutions devised by users of communal pastures are recognized by Municipal Authorities. Each objective was followed by a research question that led to meeting the stated objective as presented in chapter 4 and 5.

Generally, the study has shown that the owners and users of the Alpine commons in Tirol have been able to accomplish and sustain a sound and stable management of the commons. The applicability of the design principles tested in the study is evident. The institutional norms are strongly embedded possibly due to close nature of the members of the *AGM*. Most members come from the same village and had close relations to each. From the foregone discussion, this research shows a contrary view to Hardin's argument that resources held in common cannot be sustainable, the findings of the study indicates that Alpine pastures in Tirol have existed since 1853 and still continue to exist till date and can therefore be described as "*THE TRIUMPH OF THE COMMONS*".

### **6.3. Recommendation**

- The study did not implement all the eight design principles of Ostrom; a further study in the study area applying all the eight principles could lead to more in-depth knowledge on the management of the commons in Tirol, and also allow for a firm conclusion to be made on their adherence to Ostrom's 8 principles.
- The study did not compare the tenure arrangements and management of communal pastures in Tirol with that of the African situation. Therefore, a further study which compares the application of Ostrom's design principles in communal pasture management in Tirol or the European case with an African situation will bring out differences and/or similarities in the two settings and the global robustness of the principles.

The study has shown that communal pastoral land rights can be recorded in the Cadastre. Defining the users and boundary of the communal pasture is a very important aspect that could lead to the subsequent registration of the rights of pastoralists. Pastoral land rights in Sub-Sahara Africa can therefore be registered in their Cadastral systems if there is a defined group of users and the resource in question. The formation of the user groups and demarcation of the boundary of the pastoral common land should however be built on indigenous knowledge and practice of the people.



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## APPENDICES

### APPENDIX A: Contact details of key informants

N o.	NAME OF KEY INFORMANT	POSITION	ADDRESS	EMAIL	TELEPHONE	MUNICIPALITY	ALPINE PASTURE
1	Bernhard Scheiber	Chairman	Obergurgl	<a href="mailto:holz-kunst@utanet.at">holz-kunst@utanet.at</a>		Sölden	Kippele-Ratmoos
2	Reinhard Scheiber	Chairman	Obergurgl		436645347718	Sölden	Angerer
3	Josef Gritsch	Secretary	Windaustasse 29, 6450		52542842	Sölden	Gaisberg
4	Jakob Prantl	Chairman	Roanweg 16, 6450	<a href="mailto:gampethaya@riml.at">gampethaya@riml.at</a>	00435254766/0664240246	Sölden	Timmeltal
5	Martin Gruner	Chairman	Gurglerstaße 94, 6456 Gurgl	<a href="mailto:info@pirchhuett.at">info@pirchhuett.at</a>	004352566390/06644433040	Sölden	Verwall
6	Alexander Hann	Chairman	Apart Hotel Ideal, Dorfstraße 37, 6532		4354726243	Ladis	Urgl
7	Christian Kofler	Mayor/Chairman	Gemeinde Fiss 6533 Via-Claudia Augusta 35	<a href="mailto:ch.kofler@fiss.tirol.gv.at">ch.kofler@fiss.tirol.gv.at</a>	05476635213/06642142095	Fiss	Lader-Urg,Platzoer,Schoengamp, Wane
8		Rep. of Mayor	Gänsackerweg 2, 6534	<a href="mailto:gemeinde@serfaus.gv.at">gemeinde@serfaus.gv.at</a>	4354766210	Serfaus	Komperdell, Kerb, Heuberg, Schildach
9			Franz-Senn-Weg 9	<a href="mailto:info@similaunhuette.com">info@similaunhuette.com</a>	0676 / 507 45 02	Sölden	
10			Gurglerstr 94	<a href="mailto:info@pirchhuett.at">info@pirchhuett.at</a>	0043 (0)5256 6390/0664 / 44 33 040	Sölden	
11			Sonnleithenweg 1	<a href="mailto:info@rosmarie.com">info@rosmarie.com</a>	0043 (0)5254 2398	Sölden	
12				<a href="mailto:gripe1@live.at">gripe1@live.at</a>	0664 / 4835031	Sölden	

APPENDIX B: Responses from key informants

Questions	Respondent 1	2	3	4	5	6	7	8
<i>cadastral municipality</i>	Sölden-80110	Sölden-80110	Sölden-80110	Sölden-80110	Sölden-80110	Ladis-	Fiss-84103	Serfaus-84113
<i>Cadastral No.</i>	5325/1	4929/1	1501/1 64000/1 1679	6932/1,4836	5220/1		2166 2160/1 2159 2374	2114/1 2326 2312 2130
<i>Name of Almen</i>	Kipple- Rotmoos	Angerer	Gaislach	Timmeltal	Verwall	Urgl	Lader-Urg Platzoer Schoengamp	Komperdell, Masner, Heuberg, Schildach
<i>registered owner of Almen</i>	AGM	AGM	AGM	AGM	AGM	MUNI	MUNI	MUNI
<i>registered owner of Forest</i>	N/A	N/A	AGM	AGM	N/A	AGM	AGM	AGM
<i>Manager of Forest</i>	N/A	N/A	AGM	AGM	N/A	AGM	AGM	AGM
<i>Manager of Almen</i>	AGM	AGM	AGM	AGM	AGM	MUNI	AGM	AGM
<i>Manager of hunting lease</i>	AGM	AGM	AGM	AGM	N/A	AGM	AGM	AGM
<i>Manager of ski lease</i>	AGM	AGM	AGM	AGM	N/A	MUNI	MUNI	MUNI
<i>Manager of lease/sale of land</i>	AGM	AGM	AGM	N/A	AGM	MUNI	MUNI	MUNI
<i>Does Municipality get income from lease hunting?</i>	Yes	Yes	No	No	No	Yes	Yes	Yes
<i>Does Municipality get income from land lease?</i>	Yes	Yes	No	No	No	Yes	Yes	Yes
<i>Does Municipality get income from sale of land?</i>	Yes	Yes	No	No	No	Yes	Yes	Yes
<i>Does Municipality get income from lease of ski-infrastructure?</i>	Yes	Yes	No	No	No	Yes	Yes	Yes
<i>No. of members in AGM</i>	7	15	43	13	5	67	No Info	70
<i>Is it possible to transfer pasture-shares?</i>	Yes	Yes	No	Yes	Yes	N/A	No Info	No Info
<i>Availability of annual general assembly for AG members</i>	Yes	Yes	Yes	Yes	No	N/A	No Info	No Info
<i>Are AG executives elected?</i>	Yes	Yes	Yes	Yes	Yes	N/A	No Info	No Info
<i>Duration of office of AG chairman</i>	5	5	5	5	5	No Info	No Info	No Info
<i>Duration of office of AG committee</i>	2	2	5	No Info	No Info	No Info	No Info	No Info
<i>Do AG members pay dues?</i>	No	No	No	No	yes	No Info	No Info	No Info
<i>Do AG members have specific no. of livestock?</i>	Yes	yes	Yes	Yes	No	No Info	No Info	No Info
<i>Does AG employ the services of herdsman?</i>	No	No	Yes	Yes	Yes	No Info	Yes	No Info
<i>Is there limitation on the no. of livestock to graze?</i>	Yes	yes	No	No	yes	No Info	No Info	No Info
<i>Body that regulates the no. of livestock to graze</i>	Ausschuss	Ausschuss	EU...	No	yes (Agarbehorde)	No Info	MUNI	No Info
<i>Availability of specific grazing period</i>	No	No	No	No	yes	No Info	No Info	No Info
<i>Are grazing regulations documented?</i>	Yes	Yes	Yes	Yes	No	No Info	No Info	No Info
<i>Are AG members sanctioned for breaking rules (e.g. not attending AG meeting)?</i>	No	No	Yes	N/A	No	No Info	No Info	No Info

Note: The cadastral numbers in red are numbers that were found in the web-based Cadastre but has not been confirmed by respondents. The other numbers not in red are numbers found in the web-based Cadastre and has been confirmed by respondents. No info means respondents did not respond to those questions in the interview. AGM means Agricultural community/ Alp Association. Muni means Municipality N/A means the question was not applicable in that Alm.



APPENDIX C: Alpine pastures taken from the web-based cadastral map

MUNICIPALITY/ GEMEINDE	PASTURE/ ALM NAME	PLOT NUMBER
SERFAUS-84113	Heuberg	2321
	Kerb	2114/1
	Komperdell	.244, 2369, .222, 2114/1
	Lawens	2115/2, 2115/4, 2115/5
	Masner (hochleger)	2326
	Mansner (niederleger)	2326
FISS-84103	Schildach	2130
	Frommes- fisser	2149
	Lader urg	.89, 2166
	Platzoer	2160/2, 2160/1
	Schoengamp	.88, 2160/1, 2159
SOLDEN-80110	Wane	2374, 1781/1, 2143/2, 1781/2, 2144/3, 1779, 2144/1
	Angerer	4929/1, 6931, 4929/29, .1496, 4929/14, 4929/30, 4930
	Gaisberg	5325/1
	Gaislach	6397/1, 1679
	Kippele-rotmoos	5325/1
	Timmel tal	6932/1, 4910/1, 4905/1
Verwall	5220/1	

APPENDIX D: Translated version of the regulation plan of Timmeltal Alm

Office of the State Government of Tyrol in its capacity as highest Agricultural Authority

Version 12 Nov 2012/bvg

Innsbruck, 2.2.1970

Subject: Timmeltalpe, Sölden

Regulation

State: Tirol

District: Imst

Court district: Silz

Municipality in the cadaster: Sölden

Municipality: Sölden

REGULATION PLAN

For the

Agrargemeinschaft Timmeltalpe

In EZ1. 491 II KG. Sölden

As in paragraph 64 in agreements with paragraph 68 of the constitution of Tyrol on farmland von 15. 7. 1969, LGB1. Nr. 34

Consisting of:

A/ text

B/statute

Proceedings

The shareholders of the Timmeltalpe in Sölden-Zwieselstein present at the negotiations with the agricultural authority on 5. May 1964 applied without reservations for regulation. A mistake was made in the resulting regulation plan by incorrectly representing the individual shares as agreed by the interested parties. As a consequence of the negotiations with the Agricultural Authority of 17.12.1969 the customary distribution of shares was provided and submitted by the interested parties for inclusion in the regulation plan. Simultaneously they [*the shareholders*] requested the Agricultural Authority to issue a revised statute to replace the current statute in order to comply with the law.

As a result of the statements provided by the parties the following amended regulations apply:

I. Area

The regulated area consists of the total area in EZ1. 491 II KG. Sölden registered built-up [Bp.] and land [Gp.] parcels with a cadastral size of

		Ha	a	m <sup>2</sup>
Gp. 4836	Alpe Timmeltal	6	12	19
Gp. 4894	unproductive		12	66
Gp. 4903	unproductive		8	24
Gp. 4904	unproductive		8	60
Gp. 4905/1	Alpe	416	68	18
Gp. 4906	unproductive	254	02	17
Gp. 4910	unproductive	402	24	82

Gp. 4911/1 Alpe	40	80	01
Gp. 4911/2 Alpe	2	44	45
Gp. 4911/3 Alpe	17	28	41
Bp. 1391 Zöllhütte Timmeltal		2	22

The entire regulated area has therefore an extent of

1161 ha 59 ar 95 m<sup>2</sup>

In agreement with paragraph 37 TFLG. 1969 this area is certified as communal property in the sense of paragraph 32 Abs.1 lit. b TFLG. 1969 and owned by the cooperative as in the attached statute with the name Agrargemeinschaft Timmeltalalpe

## II Utilization and produce

The established pastoral use is to be considered as the utilization [*of the parcels*].

## III Parties and shares

According to the statements of the interested parties on 5.5.1964 and 17.12.1969 about the utilization of the regulated area as described above, the current owners of the following properties in the KG. [*Cadastral municipality*] Sölden are shareholders as indicated below:

Property	Owner	Shares
<u>KG. Sölden</u>		
1 125 I	Franz Prantl, Zwieselstein 16	7
2 165 II	Ida Santer, Zwieselstein 12	4
3 126 I	Franz Prantl, Zwieselstein 10	4, 50
4 110 I	Josef Falkner, Zwieselstein 6	4, 50
5 370 II	Helene Streiter, Zwieselstein 4	3, 50
6 116 I	Helene Streiter, Zwieselstein 4	3, 50
7 98 I	Germana Schwarz, Sölden	2, 25
8 119 I	Santer Vinzenz, Zwieselstein 7	7, 50
9 115 I	Rudolf Brugger, Zwieselstein 5	6, 75
10 419 II	Scheiber Vinzenz, Sölden 157	3, 75
11 121 I	Josef Prantl, Zwieselstein 9	4, 25
12 167 II	Mj. Franz and Josef Falkner, Zwieselstein 15	8
13 120 I	Frans Praxmarer, Zwieselstein 8	4
14 117 I	Prantl Rudolf and Mitbesitzer, Zwieselstein 2	6
15 124 I	Mathilde and Albert Pöhl, Zwieselstein 13	8
16 175 I	Josef Falkner, Maria Falkner, Zwieselstein 6	4, 50
17 450 II	Jacob Gestrein, Zwieselstein 3	0, 75
18 652 II	Jacob Gestrein, Zwieselstein 3	1
19 107 I	Jacob Gestrein, Zwieselstein 3	3, 25

The shares as provided above are attached to the properties and can only be detached with permission of the Agricultural Authority according to paragraph 37 TFLG. 1969. In case of subdivision of a property the deed should include a clause on its share [in the commons] that requires approval by the Agricultural Authority.

Participation in the utilization of the regulation area as well as cost sharing is defined by the shares as provided above. The operational costs (hiring herdsmen etc.) are shared in proportion to the actual number of animals driven up to the alpine pastures, while the investment costs as well as costs that are independent of pasture utilization (e.g. taxes etc.) are apportioned according to the shares of each right holder.

#### IV. Rights and Duties

As registered in the cadastre

##### 1. Rights:

The ownership of the cadastral parcel Gp. 6932 in EZ1. 790 II d. H. is tied to an unalienable grazing right

##### 2. Duties:

a) The servitude for the footpath and road on the parcels Gp. 4903 and 4906 for access to Gbk.[building] in EZ1. 482 II KG. Sölden (C-OZ1)

b) The servitude for allowing the construction and maintenance of an open-access road as well as the required earthworks without compensation to the benefit of the Section Siegerland and Wettin-Dresden of the DAV and ÖAV [German and Austrian Mountaineering clubs].

#### V. Business plan and regulations

Until the issuing of a business plan the utilization of the commons, especially the regulation of the pastoral activities, follows the traditional utilization and the rulings of the authorities in charge.

#### VI. Cadastral changes

Based on the regulation plan the following changes are to be made in the cadaster of the KG. Sölden, EZ1. 491 II:

1. The registration of the ownership rights of the Agrargemeinschaft Timmeltalalpe for the parcels and shares [in the commons] mentioned in this document.
2. The striking of the servitude to the benefit of parcel EZ1. 98 I d. H. (C-OZ1.)

#### VII. Statutes

The attached statutes constitute an essential component of this document and include the relevant rules for the management of the commons.

To be issued to:

[16 names with addresses]

For the Office of the State Government

25.2.1970

QUESTIONNAIRE FOR AGRARGEMEINSCHAFT – AGRICULTURAL ASSOCIATIONS (AGM)  
IN THE UPPER INN VALLEY AND ÖTZTAL, TYROL, IN PARTICULAR THE  
ALMWEIDEWIRTSCHAFT  
UNIVERSITY OF TWENTE  
VERSION 1, OCTOBER 5, 2012

NAME OF RESPONDENT: .....

POSITION OF RESPONDENT: CHAIRMAN/REPRESENTATIVE OF THE AG:  
.....

DATE OF INTERVIEW: ... OCTOBER, 2012

NAME OF INTERVIEWER: Dr. Hein van Gils/Frederick Yirilabuo

TIME FOR THE SURVEY: 45 MINUTES.

### INTRODUCTION

This investigation is part of a thesis (MSc) in Geographic Information Science with specialization in Land Administration. The aim of the study is to describe the ownership and management of the pastures and mountain meadows in the upper Inn valley and Ötztal, Tirol and understand. We will treat your information as confidential and use it only for scientific purposes. Of course, you have the right not to answer any question(s) that require sensitive information from your perspective.

The background of this study is to compare the management of the Alpine pastures from a global perspective and the related theories of Elinor Ostrom (Nobel Prize 2009). Their studies include a rudimentary description of the second hand of a single pasture in Switzerland. This lack knowledge, we try to connect with our investigation.

#### 1. First Ownership

- ..... AG is registered in the land register as the owner of the ..... and their property/land?
- Cadastral (KG): .....; plot Number: .....
- If not, who is the registered as the owner in the land? Local church, private individual but member of the AG, Private individual but not member of the AG
- We assume that the AG is the owner and manager of the Almweidewirtschaft and forest? Yes, no, no forest
- Are there any possible restriction?
- What other areas of the pasture (outside: grazing and forestry) are managed by the AG? Ski equipment, sale or lease of land, roads, others
- We assume that the income from the Alm be shared with the municipality? Generally no/yes, Hunting lease no/yes, lease of land (e.g. skiing facilities; telecom equipment no/yes
- Do you know the limit of the Alm? Yes/no
- How much headquarters properties/members belong to the AG number since 1956?
- How many members of Ag leave?
- How many new members have joined?
- Is the pasture-share (cows/VBE) of the headquarters property separately transferable by lease/sale to other group members or non-members, for example if dairy industry is set for overbuilding of land with ski resorts/holiday, or because the headquarters property on pig switches or agriculture quits? No/yes. Any comments.....
- For which management plans need the AGM ratification of the municipality or other authorities? Hunting lease no /yes, leasing of land

#### 2. Agrargemeinschaft administration /management

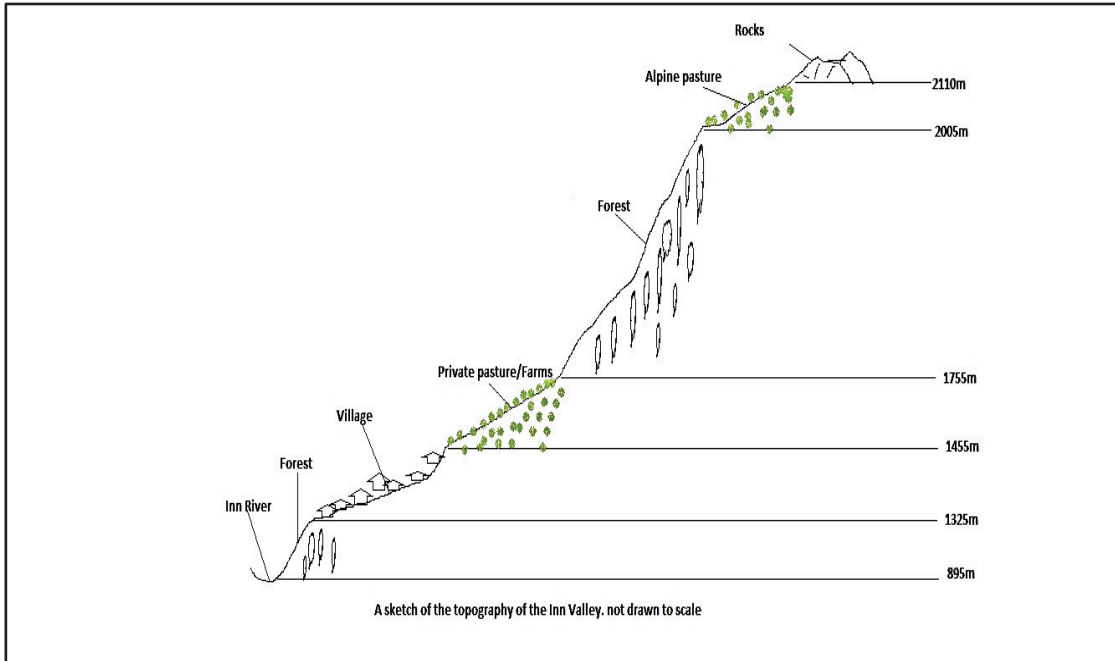
- Is there an annual general assembly of the AGM members/ yes/no
- Are there any interim AG assembly dates? Yes/no
- Is the chairman elected at the annual meetings? Yes/no
- The chairman is elected for? one year/ five years/ others
- A committee is elected at the annual meetings? Yes/no
- The committee is elected for? one year/ five years/ others
- AG members pay a membership fees? No/yes
- AG members get a payout of AG if a surplus is achieved? No/yes. Note.....
- The AG officer or a commission for pasture management? No/yes/how many: .....

### **3. Pasture management**

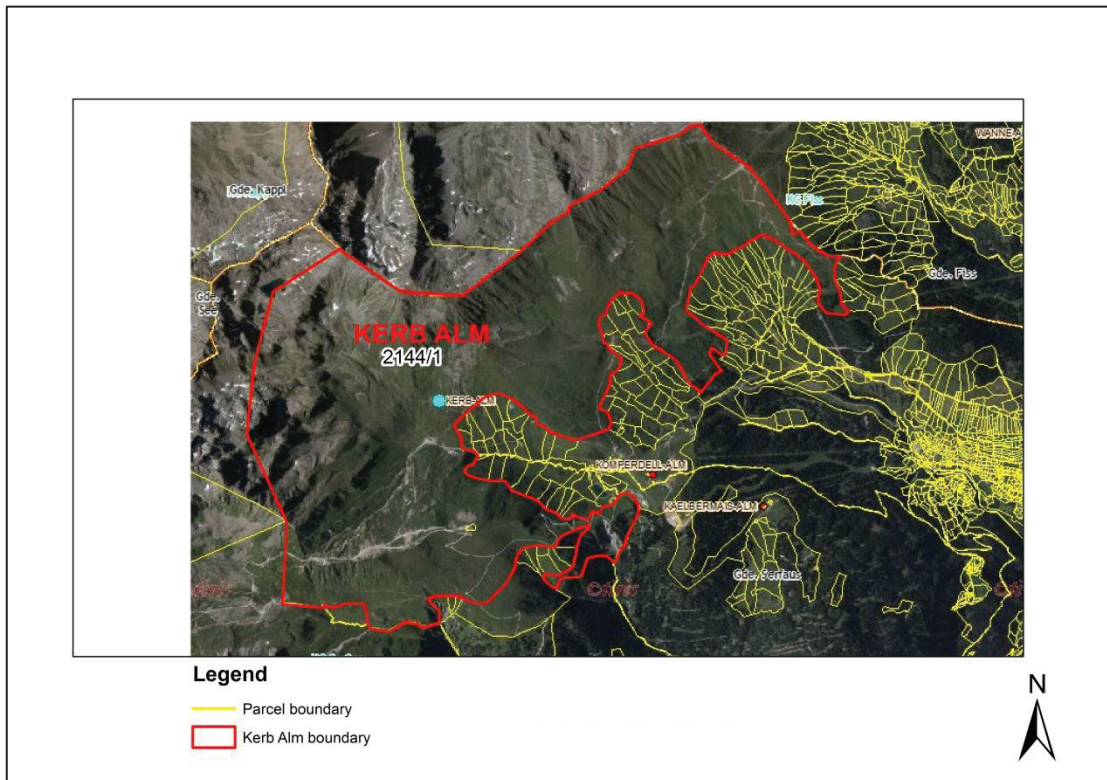
- AG has every member a committed number of cattle (VBE) on the pasture? No/yes
- The herdsmen are recruited by? AG/Ausschuss/Obmann
- Do members pay per cow for grazing on the Alm? No/yes
- Is there a legal maximum 'Viehbestockung' (VBE) number of livestock on the Alm? No/Yes
- If yes which agency regulates and controls this maximum? Agricultural Authority/ Municipality/ Other
- Are the transhumance and output dates each year on the same day? No/Yes
- If the weather (snow) condition hampers transhumance will the output change? No/yes
- If yes who decides on a new appointment? Obmann/ AG committee/Others
- Is the regulation on grazing by the AG in a document set? NO/Yes
- Can a member of the AG be sanctioned or fined (e.g. exclusion from grazing) if he for example do not pay membership dues/fees or do not take part in the annual meetings of the AG or take more livestock than his share to the Alm or sent sick livestock to the Alm? No/Yes
- Notes...
- Any other information.....



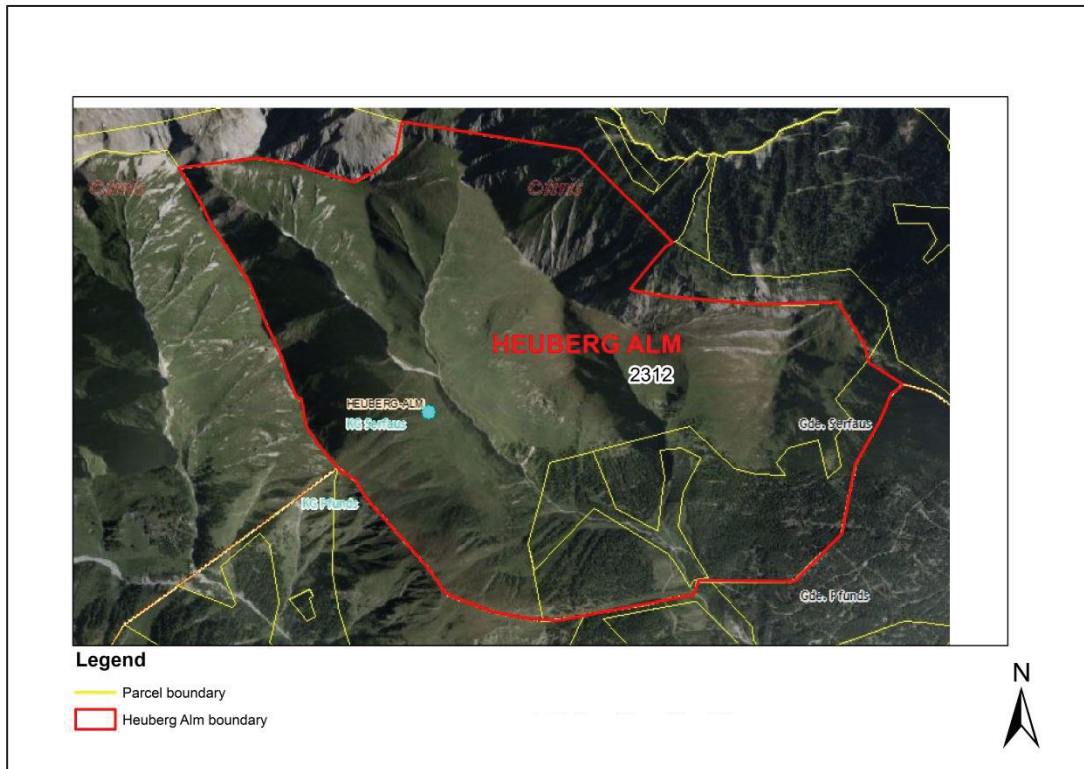
APPENDIX F: Spatial model of the topography of the Serfaus Municipality



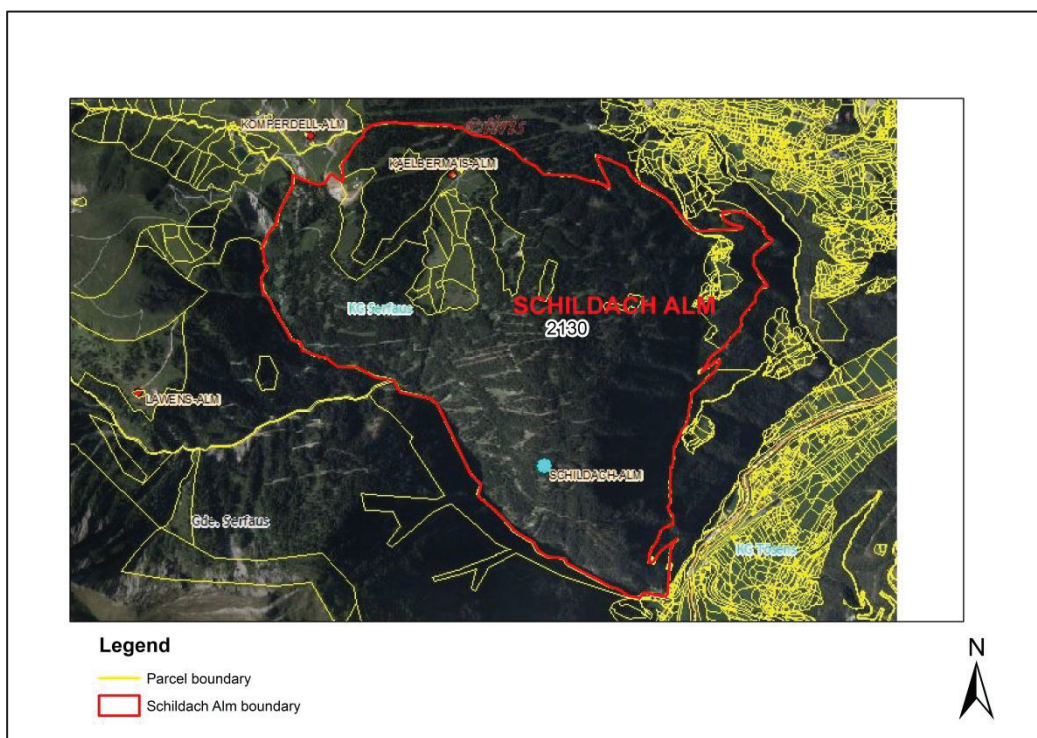
APPENDIX G: Screen shot of the Kerb Alm (Serfaus Municipality)



APPENDIX H: Screen shot of Heuberg Alm (Serfaus Municipality)



APPENDIX I: Screen shot of Schildach (Serfaus Municipality)



APPENDIX J: Screen shot of Schoengamp (Fiss Municipality)

