

CASE STUDY

ORGANIC FARMING IN MOUNTAIN REGION MURAU (AUSTRIA)

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Around 150 mountain farms in the region Murau produce organic haymilk under a private quality label contributing to the provision of ESBOs, in particular biodiversity and cultural landscapes (among others).



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1 Introduction: What is the case study about?

Austria is a predominantly mountainous country, where in large parts high nature value farming, clean environment and rich cultural and natural heritage prevail. The mountain area comprises 70 % of the national territory and 50 % of the Utilized Agricultural Area (UAA). Mountain farming has a key role in safeguarding sensitive ecosystems through the preservation of multifunctional, small structured, mosaic like landscapes and the general living environment, and is therefore fundamental to the tourism sector and to fulfilling needs of society at large (Hovorka, 2011, 2016). Organic farming is the most environmentally friendly form of agriculture in this context (Groier et al., 2005; Groier, 2013) and around 17 % of all farms in Austria are certified as organic farms, respectively 20 % of the total UAA in Austria is managed organically, representing the highest share of organically managed land use in the EU-28 (BMLFUW, 2015a). Around 72 % of all organic farms are classified mountain farms (IACS, 2014)¹ and vice versa 25 % of mountain farms are certified as organic farms (BMFLUW, 2016a). In Austria, around 69 % of all dairy cattle is reared by mountain farms, with 14 % of dairy cattle being reared in organic mountain farms (IACS, 2014). The high shares of organic farms in disadvantaged alpine regions can be explained by i) the lack of agricultural alternatives under the prevailing climatic and topographical conditions (Greimel, 2003) and ii) existing extensive agricultural practices made transition to organic feasible in relation to public support for organic farming and the opportunity to achieve higher product prices (Krammer, 2007; Buchgraber et al., 2011).

Given the relevance of both organic and mountain farming in the Austrian context, this case study focuses on successful implementation of the joint organic quality certification and marketing initiative “*Zurück zum Ursprung*”² (ZZU). While their product portfolio ranges from a wide array of organic dairy (i.e. haymilk, silage milk, cheese, yoghurt, etc.) to organic non-dairy products (i.e. vegetables, flour, bread, meat, etc.), this case study focuses exclusively on the organic mountain haymilk production scheme in the region Murau (Figure 1). This area represents one of three localized ZZU organic mountain haymilk branding strategies (i.e. Murau, Styria; Pinzgau, Salzburg; Kitzbühel, Tyrol) in Austria.

The district Murau (part of the NUTS-III-region AT 226) is defined as mountain region and covers an area of 1,384 km². It is home to 28,388 inhabitants (2016) who live in the 14 municipalities of the region. Like many other mountain regions, it is characterised by low population density (21 people / km²). There is an ongoing trend of rural depopulation which is aggravated by both a negative rate of natural demographic change as well as a negative migration balance (2011-2015) which is among other factors often triggered by a lack of employment opportunities. Only 20 % of the area is considered “permanent settlement area” (BMFLUW, 2015b). In the district Murau, 1,297 farms are registered within the IACS system (2014) of which 1,185 are classified as mountain farms. Organic mountain farming is a widely-spread management system in the district, 34 % of all farms are organic farms, respectively 37 % of all mountain farms are organically managed (IACS, 2014). Mountain farming in the region is dominated by milk production and livestock breeding as well as forest activities which together constitute

¹ Integrated Administration and Control System (IACS). For further information please consult: http://ec.europa.eu/agriculture/direct-support/iacs/index_en.htm

² “back to the origin”, translation by the author



the three main sources of agricultural income. About 34 % of all organic mountain farms in the district currently participate in the organic haymilk scheme of ZZU.



Figure 1: Location of the case study district Murau, Federal State of Styria, Austria

Generally, haymilk production is a traditional form of a relatively extensive type of farming in which cut grass is processed dried representing the prime fodder base for dairy cows (instead of silage). It is considered the highest premium milk product in Austria at present (ARGE Heumilch Österreich, 2016a), and consumer awareness, sales and turnover are steadily increasing (BMLFUW, 2016)³. The development of the general situation of the (national) milk market and price volatility is assumed to have direct impacts on the producer price for haymilk as well. The substantial agricultural support for farming in Austria reveals effects of absorbing shocks due to volatility of milk markets, at least at a short-time scale. Nevertheless a stabilization of the general milk market is desirable for the haymilk production as well, since it would further stabilize market developments.

The umbrella organization *ARGE Heumilch* was established in 2004 and unites around 8,000 haymilk producers and 60 dairies, cheesemakers and alpine dairies. Members of *ARGE Heumilch* deliver around 420,000 tons of haymilk per year (2016), representing 15% of the total volume in Austria (3 Mio. tons) while in the EU context, only 3 % of the total production accounts to haymilk (ARGE Heumilch, 2017). Since March 2016, haymilk is recognized as Traditional Specialty Guaranteed (Council Regulation (EEC) No 1848/1993)⁴.

While haymilk itself is a success story in Austria, the organic mountain haymilk scheme of ZZU links haymilk production to both organic and mountain farming. The initiative ZZU started first in 2006 as a conventional venture and transformed production into all organic in 2008. Milk of the participating organic mountain farms in the district Murau is processed by a local dairy

³ The results of a recent comprehensive study (Lindner and Kittl, 2016) on the structure of haymilk producers in Austria verified the potential of organic haymilk. The study also found that there is significant untapped potential for farms not using technical hay drying support which would increase fodder quality and reduce the amount of manual labour (Lindner and Kittl, 2016)

⁴ OJ L 58/28 04.03.2016



and is distributed by one of the largest Austrian retail chains (and the largest discounter) which also holds the intellectual property right of the ZZU brand. The organic mountain haymilk scheme ZZU comprises more stringent requirements than those of EU organic regulation (i.e. Council Regulation (EC) No 834/2007), including e.g. silage-free forage, the requirement to use 75% roughage from own production, 100 % organic feed from Austrian origin, prohibition of soya bean feeding, a minimum of 180 days access to open runs of which a minimum of 120 days on pasture grazing (Schenkenfelder, 2015; Werner Lampert Beratungsges.m.b.H., 2016a). By connecting the production of quality products to alpine landscapes, the organic mountain haymilk scheme creates synergies between the improvement of the income of mountain farmers (e.g. higher organic haymilk premium, premium guarantee) and those of other parties along the value chain, and maintenance of typical landscapes and high levels of biodiversity (e.g. through continuation of farming, and prevention of overgrowing and succession to forests).

Table 1: Key features of the ZZU project

Region or locality	District Murau (part of the NUTS-III-region AT 226).
Main farming/forestry system	Organic haymilk production, animal grazing, hay mowing. Most farmers also manage private forests, along with big forest estates.
Area (ha) of initiative (& case study)	Organic haymilk farmers in district Murau: about 3,450 ha of UAA, 450 ha alpine pastures and about 5,250 ha of forest.
Key ESBOs covered	Focus on “species and habitats” and “landscape character and cultural heritage”. Additional important ESBOs: rural vitality, animal welfare, and GHG mitigation.
Total no. of farmers/foresters involved	150 organic haymilk farmers, participating in regional initiative ZZU (“Back to origin”), with rising tendency. Each farm has on average 10 dairy cows and a total average annual milk delivery of 50,000 kg.
Other key stakeholders involved	Dairy processor, retail chain, private consulting agency.
Source(s) of funding	Basic milk price, organic haymilk premium, premium guarantee and CAP support (particularly AEM and ANC).
Start date of initiative	Established in 2006 (conventional) and transformation to organic scheme in 2008.



The analysis focuses on the conceptual framework of environmental social beneficial outcomes (ESBOs) and investigates how the production of organic mountain haymilk in this case results in positive externalities such as “species and habitats: Achieving (or maintaining) the presence of diverse and sufficiently plentiful species and habitats”, thus enhancing ecological diversity (ESBO no. 11) and “landscape character and cultural heritage: maintaining or restoring a high level of landscape character and cultural heritage” (ESBO no. 14; Maréchal et al., 2016).⁵

The case study was conducted using a multi-method and multi-disciplinary approach relating to the analysis of the provision of ecosystem services, the conceptualization of the relevant Social-Ecological System (SES) and its use as analytical framework, policy analysis of most influential policy elements (e.g. CAP agri-environmental measures) and the reference to participatory involvement of local actors and actors involved at various stages of the value-chain. In an initial assessment, stakeholders were identified representing all actors of the value chain as well as the wider social and political environment. Subsequently, focus groups and in-depth interviews were conducted in which participants (i) mapped in a participatory scoping process the key ESBOs related to organic-haymilk production, (ii) specified how they perceive, access, use and value the selected main ESBOs and (iii) provided their perception of the current ESBO status and trends.

The general aim of the case study is to better understand the provision of ecological and social beneficial outcomes through agriculture and forestry, in our case the organic mountain haymilk production under the private actor scheme ZZU in the district Murau.

⁵ There are also other highly relevant ESBOs such as rural vitality, animal welfare and air quality (absence of odour nuisances through silage production, etc.) that are connected to the production of organic haymilk under the ZZU scheme. The intention of this case study however is to focus analysis on key ESBOs.



2 Definition of the social-ecological system (SES) studied

2.1 Figure of the SES, using the revised SES Framework

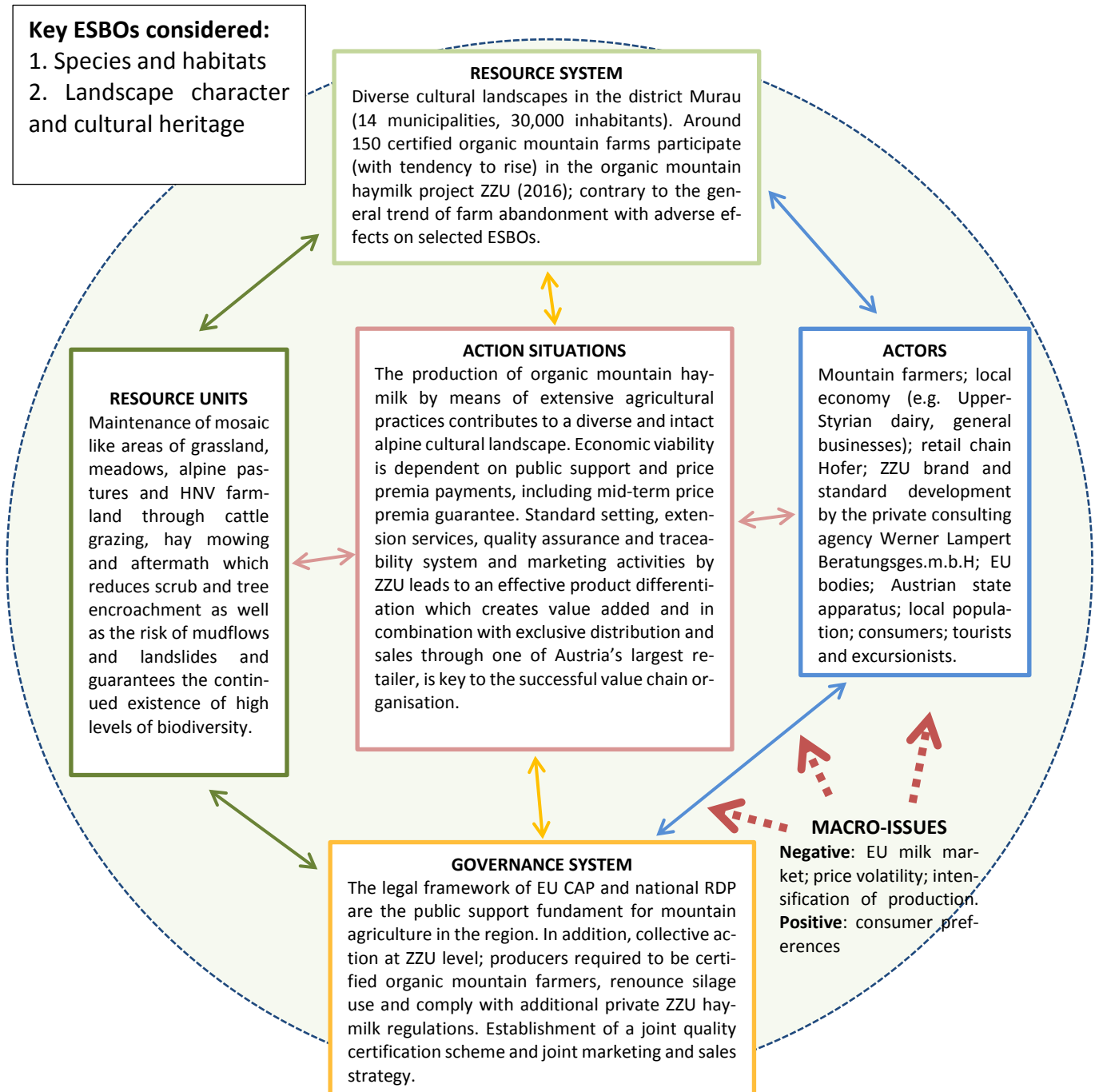


Figure 2:
Summary of the SES framework for [AT-1] case study
(adapted from Ostrom and Cox 2010; McGinniss and Ostrom 2014)



2.2 Description of the SES

Hay farming constitutes a labour-intensive type of farming that requires specific resources and well-developed skills. The labour intensity of hay harvesting increases with an increase of the mountain slope gradient from below 35% compared to above 50% on average three times (Blaschka, 2012). Until the middle of the 20th century, it was the predominant mode of land management in the alpine regions of Austria (and other mountain regions of the world with similar climate and production situations) and decisive in formation of its distinctive cultural landscapes. Since then this traditional mode of production has been by and by replaced by economically more efficient silage based management systems. This occurred in line with the general trend of an increase in farm size, scale in production, commodification, delocalization of production and consumption systems and concurrent reduction of agricultural labour, farm abandonment and rural depopulation. Yet, mountain farms have received substantial public support since several decades (in particular output neutral payments for disadvantaged areas depending on the degree of difficulty on a cadastral scale system of 1-4 as well as agri-environmental scheme payments) that acknowledged their specific social, ecological and economical function already prior to EU accession in 1995 (Krammer, 2007). In the aftermath of Austria's integration into the single market, producer prices dropped sharply which was mitigated by transition direct payments on a temporary and degressive basis as well as by measures of the new Agri-environmental Programme (Hoppichler, 2007). This situation prior to the EU accession also influenced the relatively high CAP 2nd pillar share of Austria in comparison to the EU average (AT 60%; EU 33%)⁶ (Pohl, 2009, p.35) as well as the overall high share of organic farms. Although there is political consensus and substantial public support in place, the transitional processes of intensification and increase in scale on the one hand, and price volatility and reduction of the total number of farms especially in disadvantaged areas on the other hand, is still prevalent. Despite widespread policy support for mountain farming, the challenges threatening the provision of ESBOs (i.e. intact cultural landscapes and resulting high levels of biodiversity) as well as increasing disparities between high-productive lowlands and less-favoured mountain regions have remained core features of land use in these regions.

At the same time, agri-food systems in Austria reacted to changing consumer attitudes by incorporating new post-productivist concepts (e.g. provision of ESBOs among others) into their value chain organisation and branding strategies (Schermer, 2015). These happened often through regional, organic or traditional labelled products which are to a large extent distributed via mainstream retail channels, often marketed as specific “store brands”. The three largest food retailers in Austria (Rewe, Spar, Hofer) hold together 82.9% of the food sector's market share (BMLFUW, 2014) which is the highest market concentration of the EU countries (Mayr, 2011). They act as gatekeepers and exert market power to both consumers and input suppliers (Salhofer et al., 2011). Considering that almost 70% of the organic sector's turnover is generated via these large retail channels they are of strategic importance (Größ, 2017).

The private sector initiative ZZU and their organic mountain haymilk scheme is a practice illustration of this development. ZZU was launched through the efforts of a private consultancy company (Werner Lampert Beratungsges.m.b.H.) first as a conventional mountain haymilk

⁶ The percentage rates are based on the mean value of the budget for the programming period 2007-2013 and include both EU and national budget



venture in the district Murau in 2006 and was then transformed into an organic scheme in 2008. This private actor is responsible for the standard setting, extension service and the establishment of the quality assurance and traceability system of the private label. Farmers participating in the scheme sign a declaration of participation and guarantee to adhere with the ZZU standard for which they receive a guaranteed minimum price premium for the delivered fresh organic mountain haymilk (currently until 2020) (personal communication, 1-5, 20.01.2017). The actual price premium payout is currently above the minimum price premium agreed for that period. The fresh milk of the participating mountain farms is processed by a nearby regional dairy (Obersteirische Molkerei). The retail chain (Hofer; 19 % market share of Austrian food retail sector; Mayr, 2011) is proprietor of the brand ZZU and exclusively distributes the products under their private label through their network of around 460 stores in Austria (Nielsen, 2015). Besides the production site Murau, ZZU extended their branding strategy to two other organic haymilk production regions in mountain areas of Austria (i.e. Pinzgau in Salzburg and Kitzbühel in Tyrol) and diversified their product portfolio to a wide range of organic dairy and non-dairy products of regional provenance. The significance of ZZU is the attempt to link organic farming with additional haymilk regulations and features of (traditional) mountain farming as well as the horizontal and vertical integration of the entire value chain. It represents an effort to relocalise agri-food systems in mountain areas, to link the production to environmental and social outcomes and jointly market it under a territorial proposition under better terms of trade. Thereby, ZZU acts as an antipode to the mainstream trend of agricultural intensification, farm size enlargement and concurrent farm abandonment.

Mountain farms are fundamental to the provision of ESBOs and paramount to the analysed SES in the district Murau. The resource system is characterised by its diverse and intact cultural landscape which is a result of extensive agricultural and forestry activities. Predominantly these include dairy farming and cattle breeding. Around 81% of the district area is utilized agricultural and forestry area of which 30% is used for farming and 70% by the forestry sector (BMFLUW, 2015b). Most of the forestry owners (about 66%) are small forestry owners, with less than 200 ha forest area (BMFLUW, 2015b). Also for ZZU producing mountain farmers, forestry plays a significant role as complementary source of income (personal communication, 1-4, 21.12.2015; 1-12, 28.11.2016). Besides agriculture and forestry activities (both full and part-time), many ZZU farms offer vacation facilities through “on-farm holidays” to an increasing number of tourists who seek authentic farm holiday experience (personal communication, 1-12, 28.11.2016).

There is a total of 1,297 farms in the district of Murau registered in the IACS system (2014). Thereof, 1,185 are registered as mountain farms (representing 91% of all IACS farms) of which 442 are certified organic (Table 2). Thus, 37% of all mountain farms in the district are managed organically which is far above the Austrian average of 24% of all mountain farms (IACS, 2014). Organic operations are contrary to the common held belief slightly larger in size than the average. Furthermore, 192 of them renounce the usage of silage as part of the Agri-environmental scheme. Of these 192 farms that fulfil the requirements, currently around 150 farms participate in the mountain haymilk project ZZU. On average, each ZZU farm in the district has 10 dairy cows with an annual yield of around 5,000 kg milk per dairy cow (personal communication, 1-5, 20.01.2017). The national average herd size is 17 dairy cows and the annual milk delivery is 5,734 per cow (BMFLUW, 2016a). Therefore, ZZU organic haymilk farms are smaller than the national average.



Table 2: Mountain farm characteristics in the district Murau (IACS, 2014)

	Mountain farms	Ø UAA (ha) / operation	Ø Alpine pasture (ha)/operation	Ø Forest area (ha)/operation	Silage renunciation (AEM)	Organic mountain haymilk ZZU farms*
Conv.	743	15	2	29	246	
Organic	442	23	3	35	192	150
Total	1185				447	150

*Number of ZZU participants, Murau, 2016 (personal communication, 1-5, 20.01.2017)

The resource units of the SES (grassland, pastures, meadows, High Nature Value Farmland, forest areas, etc.) represent the resource system. In the district Murau, 39.8% of the UAA (excl. alpine pasture forage areas) represents High Nature Value Farmland which is compared to the Austrian average in mountain areas of 30.8% and the general Austrian average of 25.5% significantly higher. In terms of alpine pasture forage areas, in the case study region 72% is HNV Farmland and the Austrian average is 76.5% (BMLFUW, 2015d, personal communication, 1-13, 31.08.2016). These values show the high significance of close to nature agricultural areas with high species diversity in the district Murau. Figure 3 illustrates the typical cultural landscape prevalent in the district Murau. There are two main factors of the ZZU organic mountain haymilk project impacting the resource units. First, quality is significantly shaped by the type of management system applied. Organic mountain farming practices have generally a higher farm-level biodiversity potential in comparison to conventional farming (Schader et al., 2014). Secondly, price premia for organic mountain haymilk in addition to public support (i.e. Agri-environmental payments for organic farming and silage renunciation, Areas of Natural Constraint payments - ANC) render this more cost intensive type of extensive agriculture economically more viable. As a farmer noted “without public support, there simply wouldn’t be mountain agriculture and the cultural landscapes, iconic for mountain areas, would disappear” (1-12, 28.11.2016). While a positive economic return is necessary, economic viability of land management decisions however also depends on a range of other variables such as timing, stability and certainty of earnings as well as the input requirements, associated risks and opportunity costs but also non-pecuniary factors such as personal “belief systems” (Emerton, 2014). In interviews, all farmers agreed that besides the organic haymilk premium payments it was also the premium *guarantee* especially under volatile EU milk market conditions, allowing for greater planning stability, that motivated participation (personal communication, 1-5, 31.05.2016; 1-12, 28.11.2016). They also agreed that substantial public support (through the commonly available RDP measures) made a transition more feasible and some also highlighted the positive contribution to the environment and tourism sector as an important factor for participation (personal communication, 1-12, 28.11.2016). Therefore, it is important to take the heterogeneity of farmer’s decision making sufficiently into account (Darnhofer et al., 2005).





Figure 3: Illustration of typical cultural landscapes in Murau, © Kraxner

An adequate agricultural income for extensive land management systems reduces the trend of land abandonment and thereby preserves and maintains cultural landscapes and their intrinsic value (i.e. regional identity, leisure appeal). Haymilk price premium payments support agricultural income and thereby render mountain farming economically more viable. It also economically benefits other value chain actors as well as the local public (and society at large) who all profit from the provision of ESBOs (e.g. leisure, local economy, protective function against land and mudslides, etc.). On one hand, the CAP positively impacts resource units and mountain farming through the Areas of Natural Constraint scheme as well as through Agri-environmental payments (e.g. support for organic agricultural practices and silage renunciation), on the other hand, the first pillar of the CAP contains contradictory signals towards intensification, commodification and growth.

Economic pressure on the European milk market as well as the trend towards intensification of production adversely affects resource units as well as extensive mountain farming and thereby the resource system as a whole. Positive implications on the other hand are triggered by an increasing consumer awareness and demand for organic haymilk as well as by the general trend towards healthier lifestyles and conscious consumption (personal communication, 1-1, 17.12.2015; 1-6, 02.06.2016; 1-7, 08.06.2016). While the current policies under the first pillar of CAP puts pressure on the provision of ESBOs, the second pillar supports extensive agricultural practices and therewith positive externalities such as the provision of selected key ESBOs. On a regional level, the ZZU standard is defined by a private consultancy which also offers extension services to its members. The ZZU standard requirements enable alternative positioning and differentiation in relation to other projects as well as to silage-milk, thereby creating a competitive advantage and positively impacting farm income and resource units



and thus, conservation of cultural landscapes and levels of biodiversity. Different variables such as public support schemes, price premia, price guarantee, associated positive public perceptions and consumer awareness all play into the cost and benefits equations and render this type of extensive mountain agriculture economically more viable.

Current developments of the European milk market (e.g. abolition of milk –quota, overproduction, declining prices) will also impact haymilk production in the long run. Declining price of conventional milk will also increase pressure on the organic sector.

The organic mountain haymilk production is a positive contribution to avoid overproduction of milk and may act as a role model for agricultural policy for site-specific development, production and distribution of regional products (personal communication, 1-7, 08.06.2016).

2.3 Levels of ESBO provision, trends and determinants

The negative impacts that intensive agricultural practices (e.g. input of fertilizers, pesticides, heavy machinery, silage production) exert on biodiversity levels is well documented (e.g. species reduction in intensively used meadows) (Benton et al., 2003; Zechmeister et al., 2003a; Zechmeister et al., 2003b). Also the potentially positive impact of both hay farming and organic agriculture on levels of biodiversity has been widely recognized (Hole et al., 2005; Schader et al., 2014; Schmitzberger et al., 2005). The general state of key ESBO provision in the case study area is considered very positive among all experts and organic mountain haymilk production is seen as a site-adapted management system favourable to biodiversity levels and the maintenance of cultural landscapes (personal communication, 1-9, 03.11.2016; 1-10, 08.11.2016; 1-11, 15.11.2016).

The essential requirements for participation in the ZZU organic mountain haymilk scheme include the following aspects (Schenkenfelder, 2015; Werner Lampert Beratungsges.m.b.H., 2016a, 2016b, 2010). Some (*) of which are more restrictive than EU organic (EU Council Regulation (EC) No 834/2007) and the regulatory framework for haymilk production in Austria (ARGE Heumilch Österreich, 2013; European Commission, 2016).

- Participation in the “abandonment of silage” measure of the Agri-environmental Programme
- Registration as mountain farm (*)
- Use of 100% certified organic and soy-free fodder, exclusively of Austrian origin (*)
- 75% of roughage from on-farm production (*)
- Minimum of 180 days / annum access to open runs (of which a minimum of 120 days / annum pasture grazing; and a minimum of 0.2 ha pasture area / livestock unit depending on the vegetation cycle; minimum of 6h / day) (*)
- Additional animal welfare standard - certified "Tierschutz geprüft"(certified animal welfare in cooperation with the Society for species-appropriate animal husbandry - Gesellschaft für artgemäße Nutztierhaltung) (*)
- Quality assurance and traceability system (monitoring of the entire value chain) (*)

The Research Institute of Organic Agriculture (FiBL), Austria is commissioned to conduct CO₂ assessments (since 2008) as well as water footprint, farm-level biodiversity potential (when



aggregated also at product-level) and so called “regional benefit” analysis at product-level (since 2010) for ZZU products, based on a range of different methods (e.g. ISO 14040 and 14044; Markut et al., 2015; Schader et al., 2014). For the production of ZZU organic mountain haymilk in the case study region, the results state 14,3% lower CO₂ emissions, 14,8% lower water footprint, 26% higher biodiversity potential and an 80% increased regional benefit compared to conventional dairy production. Figure 4 shows the consumer information label of ZZU organic mountain haymilk of the region Murau printed on the milk packages.



Figure 4: ZZU organic mountain haymilk sustainability label of Murau

Among the most relevant factors impacting biodiversity potential in relation to organic hay-milk production is the i) renunciation of mineral fertilizer ii) the choice of the appropriate mowing regime and iii) silage renunciation. Mowing is critical as there is a negative correlation between the number of cuttings as well as the time of cutting and plant species richness due to the reduced periods in which plants are able to flower and propagate (Zechmeister et al., 2003a). Hay farming is also responsible for the development and maintenance of the small-scale, mosaic like structures which are favourable in terms of biodiversity (personal communication, 1-11, 15.11.2016). The average number of cuttings in the case study area was around 2-3 cuttings per annum which is below the Austrian average of 5-6 cuttings (personal communication, 1-12, 28.11.2016). However, both values showcase an upward trend (personal communication, 1-12, 28.11.2016). In addition, intensive silage production often commits farmers to cut at an earlier stage and also more frequently which often leads to an advanced application of fertilizers with both in combination negatively impacts levels of biodiversity (Zechmeister et al., 2003a). Experts argued that organic hay farming tends to be more extensive than conventional silage based milk production (personal communication, 1-10, 08.11.2016; 1-11, 15.11.2016). It was argued that haymilk reduces the acquisition of nitrogen through concentrated feed which in turn fertilizes the soil negatively, impacting levels of biodiversity (personal communication, 1-10, 08.11.2016). According to experts, the positive effects on key ESBOs are to a large degree the result of the underlying organic and extensive hay farming practices which are combined in the standard ZZU regulation (personal communication, 1-10, 08.11.2016; 1-11, 15.11.2016).

The conservation of biodiversity and cultural landscapes in alpine settings is generally appreciated by society at large. This is reflected by the Austrian Agricultural Law of 1992 (BMLFUW,

2015a) and by various measures in Austrian agricultural policies (BMLFUW, 2013) and the Rural Development Programme (BMFLUW, 2015c). Evaluation reports of the RDPs in the programming periods 2007 – 2013 and 2014-2020 confirm the positive impacts (BMLFUW, 2010; 2016d). The participation in Austria's Agri-environmental Programme compensates farmers for income loss resulting from changed management practices that favour the environment (i.e. organic farming, silage renunciation). All ZZU participating farmers receive financial support from this scheme. In addition, mountain farmers receive payments from the Areas of Natural Constraint Scheme. In combination with the former, ZZU price premia (guaranteed until 2020) generate a significant income effect and thereby contribute to the continuation of farming.

A quantitative based approach for assessing the value of key ESBOs in monetary terms is not available and, what is more, methodically and conceptually not meaningful. A valorisation can be accessed via the level of support per hectare organically managed area as well as on payments per hectare from the Areas of Natural Constraints Scheme. The organic haymilk premium payment of ZZU can in the wider sense be considered as appreciation for the provision of key ESBOs. In addition, consumers associate higher environmental sustainability with organic haymilk production and acknowledge its impact on mountain cultural landscape (Matscher et al., 2009). Therefore, consumer willingness to pay higher prices for ZZU products may act as a proxy indicator for the high appreciation of key ESBOs.

Main improvements in relation to the provision of ESBOs might be achieved by further developing the ZZU product standard, through project expansion (e.g. number of participants) as well as through activities raising consumer awareness. Key limiting factors are the complex requirements (e.g. level of red tape, related costs) for transition from conventional to organic farms, hay drying facilities, milk market developments (e.g. declining prices, limits of demand for organic haymilk, restrictions in the value chain and diverse bottlenecks in high quality products provision, etc.), future expectations concerning mountain farming as well as individual mountain farmers' considerations (e.g. farm succession, off-farm employment).

2.4 Ancillary economic and social benefits provided 'on the back' of ESBOs

The production of organic mountain haymilk creates cross sector synergies. This is for example paramount to the regional tourism sector in terms of maintaining alpine cultural landscapes, regional identity and public awareness. The avoidance of odour nuisances from silage production was also frequently mentioned as a positive side effect contributing to the alpine image (personal communication, 1-11, 15.11.2016; 1-12, 28.11.2016). As a farmer noted, *"on-farm holidays are for many of us the only way to make ends meet. For that, tourists want to enjoy the classical image of a mountain scenery, see cows grazing and not experience odour nuisance caused by silage"* (1-12, 28.11.2016). A striving tourism sector contributes to the creation of quality job opportunities and thereby mitigates rural depopulation to some degree. The maintenance of agriculture in mountain areas restrains the succession of grassland to forests and secures the protection function against mud and landslides. In essence, organic haymilk production in the mountain region Murau is a valuable example of integrating environmental sustainability with economic and social welfare in line with the EU objectives of inclusive, smart and sustainable growth.



3 Shifting societal norms, collective learning and voluntary actions

The district Murau was study subject in the development of a conceptual framework for an “organic region as a model for sustainable regional development” some years ago (Groier et al., 2008). The general idea was to develop an authentic localized organic umbrella brand that would enable local actors to market their products. Even though the “organic region” remained a conceptual framework, the region was hereby already well prepared for the application of a joint organic quality certification and marketing initiative.

The transformative capacity that initiated the ZZU brand (in 2006) however came from a private actor outside of the region (with substantial existing experience) who perceived the prevailing conditions as ideal for the development of a differentiated marketing strategy based on a site-adapted haymilk standard which would also benefit the maintenance of extensive mountain farms (personal communication, 1-2, 17.12.2015; 1-6, 02.06.2016). Due to the changing consumer awareness towards conscious consumption, healthier and more sustainable lifestyle choices, the timing was considered ideal (personal communication, 1-2, 17.12.2015; 1-6, 02.06.2016). In 2008, it was decided to move forward and transform the ZZU standard into organic farming. *“The change of production system was a challenge for many of us at first, but proved to be a step in the right direction”* as a farmer stated (personal communication, 1-12, 28.11.2016). The brand ZZU “conveyed” the image of an “idyllic alpine region with high nature value” which triggered a feedback loop with positive implications on rural identity, environmental awareness and tourism (personal communication, 1-4, 21.12.2015; 1-12, 28.11.2016)). The participating farmers are incorporated in the further development of the project ZZU via their engagement in a working committee (personal communication, 1-6, 02.06.2016).

4 Mechanisms, (collective) actions and governance arrangements to enhance the level of ESBO provision

4.1 Organisational capacities, leadership, networking and communication

The agri-food chain is governed by vertical and horizontal cooperation of value chain actors. The brand ZZU brings together private actors (i.e. farmers, dairy, the retail chain and consultancy firm) in the endeavour to valorise place-specific assets (i.e. biodiversity, alpine cultural landscapes, tradition). These assets function as a competitive advantage and enable the positioning of a quality product, applying a targeted marketing strategy based on unique territorial identities which promote the visibility of rural areas that are embedded in a global economy (Horlings et al., 2014).

The alliance between all value chain actors in a new organisational form is governed by a formalized commonly shared set of rules. In this alliance, farmers agree to comply with rules and regulations defined by the private standard of ZZU through a declaration of participation. The cooperation first started in 2006 and is well developed and consolidated. The conditions for the production and preservation of both private and public goods are a reflection of consumer demand, public support measures and the private initiative ZZU. It seems important to highlight that it needed the organization of the whole value chain, from land use, primary production, processing, retail organization to marketing, and activities to raise consumer awareness



and appreciation of the particular product features of haymilk in order to establish an effective marketing and lasting economic performance.

4.2 Innovative governance arrangements and mechanisms supporting ESBO provision

The brand ZZU can be understood as the development of a “*new governance structure for existing markets*” employing a value added strategy in order to overcome challenges that come along with volatile milk markets driven by market liberalization agendas (Van der Ploeg et al., 2012). The normative framework of ZZU signals “fair prices” for primary producers in mountain areas, increased and unaltered organoleptic properties, transparency of the value chain, and positive externalities on the environment and animal welfare through organic and extensive agricultural practices. The governance arrangement builds on the horizontal and vertical cooperation of value chain actors. While this governance structure engenders value added for involved farmers, it is nonetheless highly depended on public support.

There is a significant concentration of market power at the retailers end of the dairy value chain in Austria which exercise strong market power that impacts both input and consumer prices (Salhofer et al., 2011). These influential retailers function as gatekeepers leaving little bargaining power to primary producers, and also limit influence exerted by processors, in our case the regional dairy.

The value-added strategy in combination with the inter-branch cooperation between farmers and the retail sector within the ZZU value chain generates higher farm income and is therefore a feasible alternative to the prevailing paradigm as it antagonizes the trend of intensification, abandonment of farming and thus supports the provision of ESBOs.

4.3 The role and impact of policy in ESBO provision

Rural development policies address the trade-offs in policy objectives on economic goals on the one hand, and on societal goals to provide ESBOs on the other hand. In Austria, support levels are particularly high for Pillar 2:

- Organic mountain farms (both haymilk and silage production) in the district Murau (total of 442 farms) received 2.7 Mio € support from measures of the 1st pillar of CAP and 6.6 Mio. € from 2nd pillar CAP measures (IACS, 2014) (Annex Table 6).
- Organic mountain farms with haymilk production (total of 192) received about 0.9 Mio. € from 1st pillar and 2.9 Mio. from 2nd pillar (IACS, 2014) (Table 3).
- On average, each haymilk producing organic mountain farm received 4,635 € from 1st pillar CAP, 15,157 € from 2nd pillar CAP of which 8,835 € from the Agri-environmental Programme and 5,614 € from the Area of Natural Constraint Scheme.
- ZZU mountain farmers (about 150 of the 192 haymilk producing organic mountain farms) receive a total of CAP support payments of about 3 Mio. € per annum (Nigmann et al., 2016).

Experts agreed that without public support measures (in particular the Agri-environmental Programme, Area of Natural Constraint Scheme) mountain agriculture would not be feasible, putting alpine cultural landscapes and levels of biodiversity at stake (personal communication,



1-9, 03.11.2016; 1-11, 15.11.2016; 1-12, 28.11.2016).⁷ Therefore, the European Rural Development Policy plays a central role in the quantity and quality of ESBOs provision.

Table 3 shows the distribution of public support for organic mountain haymilk farms in the region Murau based on IACS (2014) data. Only measures which can be combined with organic farming have been considered.

Table 3: ESBOs relevant distribution of public support for organic mountain haymilk farms, Murau, 2014 (IACS, 2014)

Policies and measures	# of farm enterprises	UAA (ha)	Total public support (€)	Ø public support per ha (€)	Ø public support per farms (€)
1st pillar CAP	192	3,970	889,966	224	4,635
2nd pillar CAP	192	3,970	2,910,129	733	15,157
Agri-environmental Programme (ÖPUL)	192	3,970	1,696,273	427	8,835
1 Organic farming	176	3,466	756,169	218	4,296
13 Abandonment of silage	192	2,934	458,575	156	2,388
14 Preservation of scattered fruit tree stands	15	6	688	114	46
15 Mowing of steep surfaces	171	908	152,221	168	890
17 Alpine pasture and shepherding	30	307	14,634	48	488
19 Greening of arable surfaces	36	121	15,721	130	437
26 Rare livestock breed*	6	77	21,710	282	3,618
28 Preservation and development of surfaces valuable in terms of nature water protection (nature conservation measure)	22	92	39,453	427	1,793
29 Animal protection measure*	189	3,430	205,197	60	1,086
Area of Natural Constraint Scheme	192	3,970	1,077,863	271	5,614
Other measures			135,993		

*number of livestock units The key premium rates of the Agri-environmental Programme in the period 2007-2013 were as follows:

⁷ Farmers in the region (NUTS 3 level), an average of around 60 % of farm income is derived from public support in 2014 according to the Austrian Farm Accountancy Data Network (FADN) - (LBG Österreich GmbH, 2015)



- Organic farming premium: 110 € for < 0.5 roughage consuming livestock units / ha and 240 € for >= 0.5 roughage consuming livestock units / ha (BMFLUW, 2015c, p.263).
- Abandonment of silage premium: 130 € / ha, respectively 170 € / ha depending on the milk quota / ha forage acreage (BMFLUW, 2015c , p. 322).
- Mowing of steep surfaces premium: 105 €, 230 € or 370 € depending on the slope gradient (BMFLUW, 2015c, p. 329).
- Animal protection premium: 60 € / livestock unit (BMFLUW, 2015c, p.386)

The Agri-environmental Programme is mainly oriented in maintaining and improving environmental conditions with the objective of preserving cultural landscape and biodiversity.⁸ Farmers who chose to participate have to remain in the program for a minimum of five years. In the district, each haymilk producing organic mountain farm received on average 427 € / ha from the Agri-environmental Programme. On average, each organic mountain farm in the district received 271 € / ha from the ANC scheme. The total payment per ha from 1st and 2nd pillar CAP amounts to 957€ per ha. These payments contribute substantially to the agricultural income of mountain farmers (BMLFUW, 2010; Hovorka, 2011). The bulk of these payments is provided by pillar 2 measures (ca. 70%). The largest amount is provided by Agri-environmental payments (ca. 45%) and the Area of Natural Constraint Scheme (ca. 28%) of all CAP support (IACS, 2014).

Besides the significant income effect these policies generate with its positive impact on the continuation on farming, the Agri-environmental Programme also contributes to the provision of ESBOs (esp. cultural landscape, levels of biodiversity). Table 3 exemplifies the most relevant measures in the district Murau. The results of the evaluation report show that the measures “organic farming”, “abandonment of silage”, “mowing of steep surface”, “alpine pasture and shepherding” and “nature conservation measures” exert clear positive impacts on the level of biodiversity (BMLFUW, 2010). In addition, “animal protection measures” is not only relevant in terms of species-appropriate animal husbandry but also an indication for rural vitality and important alpine cultural assets (personal communication, 1-9, 03.11.2016; 1-11, 15.11.2016). However, the various measures differ in terms of their effectiveness and it is acknowledged that more targeted measures have a higher impact leaving room for future improvements (BMLFUW, 2010). Yet, there is a frequent critique that public funds should be applied as focused as possible. While the responsible handling of public funds is beyond doubt, it bears the internal risk that only regions with a low environmental standard receive funding, leaving areas with existing high nature value behind (personal communication, 1-11, 15.11.2016). Therefore, it is important to acknowledge the role of the AEP not just for the establishment but also the maintenance of a high environmental standard. For this reason, both broad and targeted measures are of equal importance.

4.4 The role of the private sector in ESBO provision and enabling factors

ZZU is a prime example of horizontal and vertical cooperation in the Austrian context. The private quality marketing generates added value by the market and distributed under improved terms of trade along the value chain (Table 4). It should be acknowledged that public

⁸ “Agri-environment measures provide payments to farmers who subscribe, on a voluntary basis, to environmental commitments related to the preservation of the environment and maintaining the countryside.” For more information, please see: http://ec.europa.eu/agriculture/envir/measures/index_en.htm



support is independent from project participation but constitutes a basic requirement to engage therein (i.e. certified organic production, mountain farming situation, renunciation of silage). The retail partner markets the ZZU brand under a territorial proposition including values such as: traditional local production (exclusively produced by organic mountain farms and processed by a local dairy unit), animal welfare, GMO-free production, transparency, food quality, and processed through a fair partnership. ZZU claims to create a viable alternative for small-structured alpine agriculture in Austria which conserves and maintains cultural landscapes and high levels of biodiversity (Schenkenfelder, 2015; personal communication, 1-1, 17.12.2015; 1-5, 31.05.2016; 1-6, 02.06.2016). This general target is further supported by activities in other mountain regions enhancing other quality product patterns and applying similar value chain organizations. In all these activities, the transparent presentation of the product origin and the regional impact and ESBOs provision is of core relevance in the marketing strategies and consumer communication. Our case study product, the ZZU brand, has achieved a particularly high consumer recognition value and enables the retail chain to improve its image and competition at industry level. Figure 5 shows the value chain organisation of ZZU.

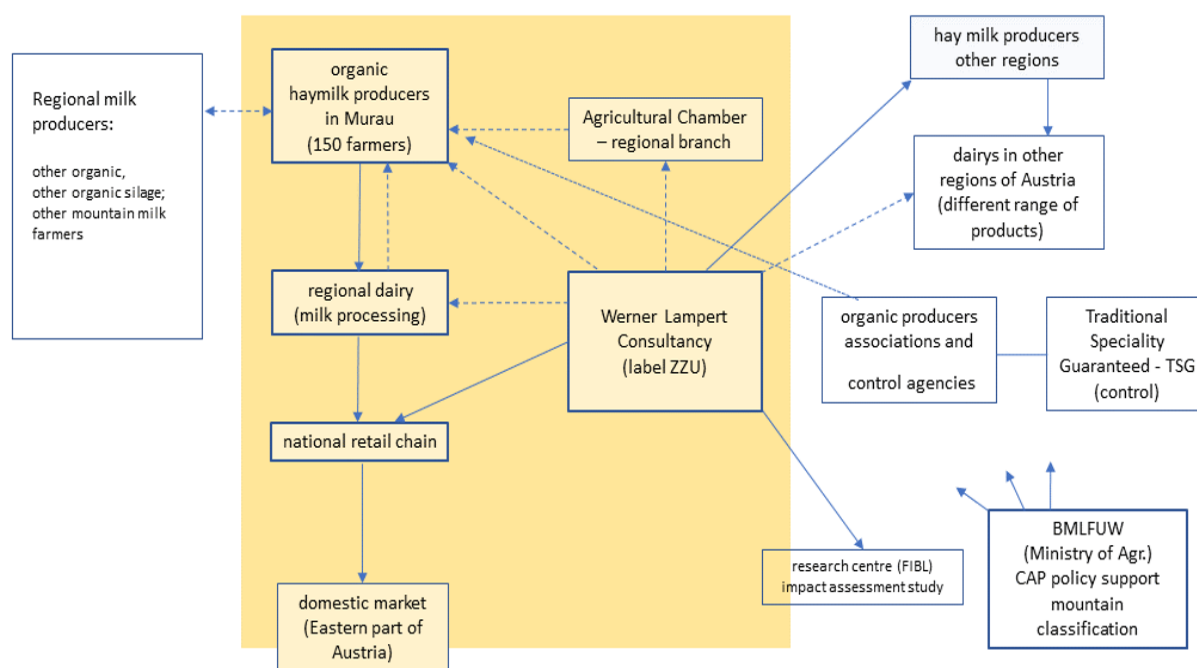


Figure 5: The value chain: organic mountain haymilk production in Murau

In terms of value distribution, the dairy, respectively the retail chain offers an organic haymilk premium payment of 0.12 € / kg milk (4.2 % fat, 3.6 % protein) (in 2014) which has recently been increased up to 0.21 € / kg (personal communication, 1-6, 02.06.2016; 1-12, 28.11.2016). The additional variable cost of ZZU organic mountain haymilk is estimated to be 0.15 € / kg higher than conventional milk (personal communication, 1-12, 28.11.2016). The higher variable costs are mainly attributed to higher cost of certified organic concentrated feed (personal communication, 1-12, 28.11.2016). The final consumer sales price of conventional milk is 0.81 € per litre (excl. VAT) and 1.17 € per litre (excl. VAT) for ZZU organic mountain haymilk. While the farmers' share of the value chain is around 35 % for conventional milk, it is 40 % for ZZU farmers. The generated additional turnover for 150 participating farmers in the region is roughly around 1.57 Mio. € (calculated with an average annual milk production of 50,000 kg)



or about 10,500 € per farm. Considering the higher variable cost, net value added is on average roughly 3,000 € per farm higher than for conventional production.

Table 4: Comparison average milk prices by kind in Austria and value chain composition

	Farm raw milk prices in € cent / kg (4.2% fat, 3.4% protein) (excl. 13% VAT) ²	Price premium in € cent / kg (excl. 13% VAT) compared to conventional	% change compared to conventional milk prices	Estimated higher cost of ZZU organic haymilk in € cent / kg (4.2% fat, 3.4% protein) compared to conventional	Estimated average final product sale price in € cent / kg ³ (excl. 10% VAT)	Value chain composition	
						% farm level	% processing + distribution
Conventional	28.4	-	-	15	80.9	35.1	64.9
Haymilk (conventional)	34.0	5.6	19.8	8	99.1	34.3	65.7
Organic	41.2	12.8	44.9	12	113.6	36.2	63.8
ZZU organic haymilk	47 ¹	18,6 ¹	65.5	-	117.3	40.1	59.9

¹personal communication, 1-12, 28.11.2016

²Average Austrian milk prices on October, 2016 (AMA, 2016, p. 9)

³Based on calculated average product prices at retail level as of 12.11.2016

Public support is highly relevant in the production of organic mountain milk. Table 5 shows a very simplified calculation estimating the average CAP support per kg of farm raw milk of different production systems. The calculation is based on the average milk delivery and the average CAP support per management system shown in the Table. In this context, it is important to consider that 1st pillar payments are site-related, not connected to production and not related to any specific production type or level or management, thus being granted also in the absence of milk production. In addition, the calculation considers an estimated average contribution of dairy production to farm income of 39.2 % at NUTS 3 level (AT 226).

Table 5: Estimated average CAP support per kg of farm raw milk

	1st pillar CAP	2nd pillar CAP	Σ CAP
All milk producer ¹	2.1	5.4	7.5
Organic milk producer ²	3.0	7.4	10.3
Organic haymilk producer ³	3.6	11.9	15.5

¹ Average milk delivery (organic and non-organic) per farm per annum is about 100,000 kg (personal communication, 1-5, 20.01.2017). In comparison, the average milk delivery (organic and non-organic) in the Federal State of Styria is 99,695 kg (BMLFUW, 2016a).

² The calculation assumes an average milk delivery of 80,000 kg per farm per annum. In comparison, the average organic milk delivery in the Federal State of Styria is 81,613 kg per annum per farm (BMLFUW, 2016a).

³ Average organic haymilk delivery in Murau is 50,000 kg per farm per annum (personal communication, 1-5, 20.01.2017). In comparison, the average milk delivery in the Federal State of Styria is 62,386 kg (BMLFUW, 2016a).



According to participants (personal communication, 1-12, 28.11.2016) the current farm raw milk price is 0.47 € / kg (excl. VAT) (4.2 % fat, 3.4 % protein) for ZZU organic mountain haymilk, including ZZU premium payment of 0.19 € / kg (excl. VAT). The estimated production costs are in the range of about 0.45 € - 0.50 € / kg (personal communication, 1-12, 28.11.2016). Considering even the current low basic milk price, project participation for milk farmers is considered as economically viable.

The vertical integration of the value chain helps to reduce transaction costs and mitigates the production risk of producers (i.e. price premium, premium guarantee). Price premia but also the Agri-environmental Programme seek to provide an economic incentive to farmers to undertake farming practices that include i) prohibition of chemical pesticides and inorganic fertilizers, ii) management of field margins and iii) preservation of mixed farming. Organic management provides a more wide ranging advantage as the whole farm is subject to the organic standard and not just certain areas on conventional farms under the AEP. Besides financial incentives, a range of individual intrinsic motives such as prestige, tradition, independence, environmental attitudes, etc. endorse the decision making process and the type of farm management system applied (Darnhofer et al., 2005; Emerton, 2014; Schmitzberger et al., 2005; personal communication, 1-12, 28.11.2016). The increased economic viability and attractiveness of project participation contributes to the continuation of farming, the maintenance of small structured mosaic like cultural landscapes and high levels of biodiversity.

5 Potential pathways towards an enhanced provision of ESBOs

Future development scenarios of the initiative ZZU fostering an enhanced provision of key ESBOs enhance the supply and respond to the demand for this type of products, and include as well a public and a private driver component.

On the supply side, the development of the European milk market (e.g. overproduction, declining prices) undoubtedly impacts the directions taken by the initiative ZZU and its appeal to producers. Firstly, because extensive haymilk production is only a part of agricultural practices and the prevailing cultural landscape in mountain regions. Secondly, a declining price of conventional milk will also increase pressure on the organic sector. Therefore, experts argued that it would be advantageous to decouple the haymilk price from the general milk price and to market it as specialty product (personal communication, 1-8, 08.06.2016), a strategy which is, however, already pursued through the marketing of ZZU milk. If the organic haymilk premium provides sufficient incentives for milk farmers it might be attractive for additional farmers, also from other regions to engage in similar activities.

In terms of drivers, both public (i.e. support under AEP and ANC scheme) and private (i.e. price premium, price guarantee) support are decisive factors impacting on farmer's land management decisions and contribute to increasing participation. Without the public support measures, agricultural production of marginal productivity areas might be given up and production in favored areas would tend to shift towards more intensified forms of management or other more favourable regions (personal communication, 1-9, 03.11.2016; 1-11, 15.11.2016). While AEP measures are not targeted directly towards achieving an income supplement, they however de facto function as such.



ZZU premium payments incentivize the adoption of environmentally sound land management systems. However, premium payments may also bear an internal risk towards increasing intensification (personal communication, I-11, 15.11.2016). Concerning the provisions of ESBOs, private standards should therefore clearly define, communicate and monitor production measures that limit tendencies for intensification (e.g. number of cuts, sucker cow husbandry). This way, the “conventionalization” of the organic sector may be hampered (Darnhofer et al., 2010). It is also important to note that aggregation of certification schemes and additional red tape is seen as critical and may bear especially heavy on small-scale farms in disadvantaged mountain areas. The term “farmer’s welfare” was also often mentioned and should be considered in further developments of public policies and private production standards (personal communication, I-12, 28.11.2016).

Currently there are around 150 of the 192 organic mountain farms of the district that renounce to silage use and are part of the initiative within the district Murau (2016). While there are an additional of around 250 organic mountain farms who could potentially convert production in order to fulfill ZZU participation requirements. In addition, conventional haymilk producing farms could convert to organic production methods. Hence, there is still some untapped potential for increase of the scheme and improvements of ESBO provision at regional scale.

This fact links to the demand side. While ZZU first initiated a joint organic mountain haymilk quality certification scheme, every supermarket stocks a similar product today. The total volume of haymilk in Austria is 420.000 tons (2016) which represents around 15 % of the total volume produced (3 Mio. tons) compared to an EU average of only 3 % (ARGE Heumilch, 2017). Yet for only around 343.000 tons a haymilk premium (2015) is paid as the differential is mixed production and marketed as conventional milk, potentially showing a bottle neck of the demand side (AMA, 2016). Therefore, there is still some need for further activities to raise consumer awareness.

The haymilk production is a positive contribution to address challenges in the milk market and may act as a role model for agricultural policy for site-specific development, production and distribution of regional products with concurrent provision of ESBOs (personal communication, 1-7, 08.06.2016; 1-8, 08.06.2016). Necessary socio-economic factors for a sustained and enhanced provision of ESBOs depend on the continued viability of mountain farming as well as extensive land management systems for which an adequate agricultural income is a prerequisite. In this case, it is composed of the basic milk price, a substantial support for mountain farmers through payments of the 1st and particularly the 2nd CAP pillar and the additional haymilk premium payment.

6 Suitability of the SES framework and ‘action-orientated approach’ in the analysis of ESBO provision

The project team discussed the SES framework with stakeholders, both in interviews and focus groups which brought along new useful insights. The main advantage of the SES framework is the graphical illustration of the systemic interrelations that enabled a structured discussion regarding social and ecological aspects in a holistic way. Yet, the actual work on it was quite demanding, particularly with regard to achieve high participation. The selected variables



needed some thorough explanations fitting the context of the case study as different stakeholders showed a different level of understanding and conceptual approach of the variables. The rationale for divergent views may be grounded in different corresponding previous knowledge of the subject as well as individual, corporate or political affiliations. For this reason, the application of the SES framework is especially useful in the qualitative domain showing the role specific ESBOs assume for different stakeholders. This also relates to the assessment if and how the relevant ESBOs impact on stakeholders' decision making processes as well as stakeholders' understanding of the variables. The action oriented approach was mainly driven by the project's interest in this case study as the private actor's interest in action research was not pronounced. This may be attributed to the protection of interests (e.g. business information, competition context, limited time resources etc.). However, the repeated visits and interviews with actors of the production and processing side of the value chain triggered and reinforced the awareness regarding ESBOs.

7 Main conclusions derived from the Steps 3-4 analysis

The analysis of steps 3 and 4 allowed an intensification of contacts with specific experts and stakeholders and an extension of the scope of interviewees. This enabled a deeper knowledge of the various aspects of the SES and its relevance in providing ESBOs, the analysis of the governance aspects and the institutional framework, with a focus on the horizontal and vertical aspects of the value chain, a discussion on the main driving forces and enabling factors for the specific kind of land management and product quality of the project, and the pertinence of the case for the general CAP discussion and provision of public goods through land management organisation.

7.1 Key findings on the particular SES and the provision of ESBOs

Agriculture and forestry in the mountain district Murau are inseparably linked to the provision of key ESBOs. The organic haymilk initiative ZZU has a strong positive impact on them. An important prerequisite for the continuation of mountain farming and the provision of ESBOs (e.g. on a medium-term) is a sufficient agricultural income. Under the current regime this is achieved via relevant support measures from the RDP in combination with haymilk premium payments. Without these top-ups, a marginalization of low yielding areas and an intensification of high yielding areas would occur. Consumer choices in favor of organic haymilk products directly impact the provision of relevant ESBOs. Also, revenues from other gainful activities (which means farm diversification income, like farm holidays) and off-farm employment opportunities contribute to the continuation of farming in the region. Therefore, adequate regional policies for mountain areas are relevant for the provision of ESBOs.

The conservation of cultural landscapes and high levels of biodiversity in mountain areas is relevant to the wider society and local population alike (quality of life) and an important resource for the tourism sector as well as for mountain farmers themselves. This is reflected by support measures within the framework of the RDP, the objectives of agricultural policies, increasing consumer demand for organic haymilk and directly by the interest of farmers to participate in the initiative, proven by the substantial share of farmers in the region participating in the project ZZU.



This analysis exemplifies that ZZU is a potential way to successfully increase agricultural income while simultaneously “producing” positive environmental and social outcomes. Based on the success story, other retail chains established similar schemes based on the production of haymilk. There is also an umbrella association of haymilk producers as well as an haymilk specific label with high consumer recognition value (ARGE Heumilch Österreich, 2016b). Considering the current demand situation, a further expansion and development of haymilk production can be expected and appropriate expansion strategies are recommended.

The awareness and provision of ESBOs can be increased by consumer awareness building activities as well as by incentivizing agricultural management practices that enhance ESBOs provision (e.g. price premia, measures within the AEP such as illustrated under 4.3). Since March 2013, Austrian haymilk is also recognized as Traditional Specialty Guaranteed which may promote consumer recognition⁹.

7.2 Key findings on governance arrangements and institutional frameworks

The combination of public and private governance arrangements and institutional frameworks successfully contributed to the provision of ESBOs in the case study area. Paramount to the success was the establishment and implementation of the project ZZU by private actors and the cooperation with other private parties. Especially, the dairy on the processing side as well as the powerful distributional capacity (throughout Austria) and a long-term agreement with premium guarantees, provided by the retail chain enabled the development of the label and its marketing success. In addition, the willingness of farmers to convert to organic agriculture and to join ZZU was decisive.

Subsequently, similar ventures developed in other mountain areas in Austria. While this project could in principle be replicated in lowlands, necessary structures often do not exist anymore and the close relationship to some of the core ESBOs (landscape character) are absent in those regions. Therefore, it is primarily an approach for a specialty product from mountainous regions.

Uniform and transparent terms and conditions (e.g. participation, standards) of the agreement were the particular strength of the governance arrangement. Third party control and monitoring guarantee compliance as well contribute to the image of the project and establish consumer trust.

The last CAP reform had no direct, immediate impact on the project. However, EU wide trends (e.g. overproduction of milk) will inevitably lead to declining (overall) milk prices in the long run. Given the current price levels of organic milk (e.g. in relation to conventional milk) the interest of farmers for initiatives like ZZU will continue and it might increasingly attract prospective producers (personal communication, 1-6, 02.06.2016).

Agricultural policies, especially RDP instruments of the 2nd CAP pillar, have a distinct impact on the provision of ESBOs (e.g. support for organic agricultural practices, silage renunciation, Areas of Natural Constraint Scheme).

⁹ OJ L 58/28 04.03.2016



7.3 Other enabling or limiting factors

Prior to the creation of the organic brand ZZU there have been preparatory studies regarding the opportunities for an “organic region Murau” (Groier et al., 2008). While this concept has not been put into practice, it was valuable for the discussion and creation of ZZU. Due to the long-term priorities of agricultural policies for supporting mountain farming and agri-environmental focus in land use management (since several decades), the case study area of Murau is still home to a significant number of haymilk producing mountain farms. This fact certainly made the up-take of the organic haymilk project ZZU more feasible than in other contexts. For this reason, the ESBOs provision was already high prior to the project start and appreciation of the situation is an important aspect in Austria’s policy discourse. However, future land management in mountain areas, including the case study, is threatened by challenges arising from a global market.

7.4 Contributions to EU strategic objectives

The last CAP reform with its focus on “greening” and the discussion of “external effects” provided through agricultural and forestry management already addressed the increasing concern and role of public goods provision. A more critical assessment, however, reveals that the CAP reform approved primarily used this focus in order to “justif(y) the CAP with a transformation of key discourses (productivist, multi-functional and neo-liberal) by emphasising the hugely popular environmental element while, at the same time, employing a strong productivist discourse ... and the budgetary distribution between EU member states and farmers’ groups” (Erjavec & Erjavec, 2015, p.53). Moreover, another study on the evaluation of the effects on the protection of positive functions of farmland and grassland ecosystems concludes that the “EU agricultural reform fails on biodiversity” (Pe’er et al., 2014, p.1090). There is hence an important task to provide methods and useful examples that provide public goods in various regional contexts. The case study is an example that links the provision of ESBOs with a specific regionally adapted land management system and highlights the need for private initiative and public support.

The starting discussion on the future of CAP post-2020 addresses the high importance of analysing the relevance of local public goods and global public goods and the role of policy support towards each of them (Matthews, 2016). It seems that the influence of Pillar 2 measures which are the most important base to this case primarily enforces local public goods and is driven by future Rural Development Policy (Dax & Copus, 2016) with its strong inter-dependence with other regions’ markets and social demands evolution. A comprehensive assessment of public goods linked to the local opportunities and asset base *and* a careful development of value chains integrating local, regional and trans-regional levels seems crucial for achieving successful initiatives.

The present case study underpins the opportunity of mountain regions for reasonable and effective solutions to link various concerns of different actors and to contribute towards EU strategic objectives like securing biodiversity levels, landscape development, high-quality production, and impacting on rural vitality aspects as well. It constitutes an interesting model of appropriate land management, organization of high-quality production, establishing the necessary labelling and value chain and enhancement of societal demand for the product *and* the public goods linked to the management.



7.5 How about the transferability of the approach/mechanism used?

The case study presents an activity that is usually referred to as a process led by private actors. This is true and particularly relevant for the labelling of the products, the management organisation and rules, linking up to the value chain and marketing of the products. However, it is based on a widely applied and intensive CAP support for mountain farming in Austria that has its origin in (national) support schemes elaborated since the 1970s. What is more, the total of farm support has achieved a level of about 80-90% of the agricultural income of mountain farms (Hovorka & Dax, 2009) which underscores the long-term valuation of these land management systems and its effects for the society at large. The case of a specific (private) premium as a top-up payment to this support level is specific to the increasing valuation of high-quality products, addressing all three aspects mountain origin, organic production and the use of a traditional (and environmentally beneficial) management method.

In general, the organization of the production of haymilk could be extended to other areas in Austria, or other countries. Limitations apply to such extensions as the market capacity has to be prepared and adjusted, so no immediate “transfers” seem possible. The applicability of the scheme in other countries depend also on the traditional management organisation in those countries and how the haymilk method matches to those management systems.

On the other hand, it seems more interesting to consider transfer of the logic of the quality production and the value chain and learn from the organization of the market. In particular, it seems useful to highlight that the private company took the initiative and, referring to the public good aspect of the “traditional” land management system, elaborated a regional cooperation and national distribution of the high-quality product. Their marketing concept always addressed the issue of maintenance of mountain landscape and biodiversity through developing this product.



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9 ANNEX: Reflections on the case study methodology used

As mentioned in chapter 6, the action oriented approach was restricted to the efforts taken by the project team to engage repeatedly with actors at different levels. It was not as pronounced as envisaged as the retail chain was not available to participate in a more intensive “action research” process. This fact might be attributed to the protection of business information, competition context of the market as well as time availability and perceived relevance. It was agreed to keep interviews and, specifically, sections of interviews anonymous which is the reason that sub-chapter 9.5 should be removed before publication.

9.1 Objectives and activities undertaken with initiative/stakeholders

The action mandate envisaged a strong involvement of mountain farmers as well as stakeholders at regional level. This was achieved by organizing an additional regional focus group in step 3 of the case study work where different ZZU mountain farmers, working committee members and dairy representatives participated. Moreover, a range of experts including both the coordinator of the Agri-environmental Programme and the coordinator for the Areas of Natural Constraint Scheme as well as researchers from the Austrian office of the Research Institute of Organic Agriculture were interviewed.

9.2 Outcomes and further steps

The gathered information (e.g. hand written manuscripts, flipcharts, audio recordings) have been carefully analysed and synthesized. Relevant information was included in this Case Study report. The synthesis will also be published in German and presented on the institute’s homepage. Lastly, it is envisaged to present the study results in a regional workshop for discussion with local and regional actors.

9.3 Judgement on the process

The expectations of farmers regarding the outcome of the interviews and the project as a whole was mainly based on the idea to address their issues at EU level. While the information will be published, and discussed at various fora, the expectations of using the case study as transmission towards higher levels has to be dampened. A more action oriented approach might have been feasible in a mainly bottom-up based initiative.

It seems highly difficult to step into a “privately-owned” scheme and suggest exchange of experiences where local actors are convinced of their successful implementation of a high-quality project. The reference to the research concept on public goods and ESBOs provision at the regional scale confirms the private labelling strategy and indicate its more general relevance to national and EU policy objectives. Although our intensive case study allowed a visualization of diverse actors and perspectives in this project, elaboration of the scheme and product success are much more long-term targeted. In assessing the project’s contribution to local discussion, we should be aware of these diverse time horizons and commitment.



9.4 Supporting data and statistics

- Austrian IACS system (data for 2014)
- Agricultural Census Austria [Agrarstrukturerhebung Österreich] (data for 2013)
- AMA *Marktbericht* (Milch und Milchprodukte No. 9. Ausgabe 2016)

Table 6: Distribution of public support for organic mountain farms in the district Murau (IACS, 2014)

Policies and measures	# of agricultural operations	UAA (incl. alpine pastures) / ha	Total public support / €	Ø public support per ha / €	Ø public support per farms / €
1st pillar CAP	442	11,220	2,676,821	239	6,056
2nd pillar CAP	442	11,220	6,635,462	591	15,012
Agri-environmental Programme (ÖPUL) in total	442	11,220	3,713,179	331	8,401
1 Organic farming	415	9,381	2,047,985	218	4,935
2 Environmental sound management of arable and grassland surfaces (UBAG)	23	434	40,350	93	1,754
3 Renunciation of the use of yield-increasing inputs on arable land	1	0.07	8	115	8
4 Renunciation of the use of yield-increasing inputs on arable land dedicated to green forage and on grassland	21	367	17,239	47	821
5 Abstention from the use of fungicides on grain-growing land	4	15	384	25	96
13 Abandonment of silage	192	2,934	458,575	156	2,388
14 Preservation of scattered fruit tree stands	29	10	1,134	116	39
15 Mowing of steep surfaces	390	2,052	329,135	160	844
16 Management of mountain meadows	1	0.45	194	430	194
17 Alpine pasture and shepherding	78	1,551	68,937	44	884
19 Greening of arable surfaces	104	396	51,306	130	493
25 Low-loss application of liquid organic fertilizers and biogas manure (m3)	1	1,000	1,000	1	1,000
26 Rare livestock breed*	20	226	42,825	189	2,141
27 Rare agricultural crops	3	5	545	115	182
28 Preservation and development of surfaces valuable in terms of nature water protection (nature conservation measure)	53	228	91,863	404	1,733
29 Animal protection measure*	414	9,445	561,701	59	1,357
Area of Natural Constraint Scheme	442	11,220	2,670,799	238	6,043
Other measures			251,484		

*number of livestock

Note: Table 6 comprises organic mountain haymilk farms and organic mountain silage farms



Table 7: Distribution of public support for conventional mountain farms in the district Murau (IACS, 2014)

Policies and measures	# of agricultural operations	UAA (incl. alpine pastures) / ha	Total public support / €	Ø public support per ha / €	Ø public support per farms / €
1st pillar CAP	743	12,605	2,859,910	227	3,849
2nd pillar CAP	743	12,605	6,802,735	540	9,156
Agri-environmental Programme (ÖPUL) in total	743	12,605	2,971,331	236	3,999
2 Environmental sound management of arable and grassland surfaces (UBAG)	716	12,605	962,118	76	1,344
3 Renunciation of the use of yield-increasing inputs on arable land	41	55	6,276	114	153
4 Renunciation of the use of yield-increasing inputs on arable land dedicated to green forage and on grassland	634	9,521	439,591	46	693
5 Abstention from the use of fungicides on grain-growing land	20	62	1,538	25	77
13 Abandonment of silage	246	2,278	348,847	153	1,418
14 Preservation of scattered fruit tree stands	21	10	1,176	118	56
15 Mowing of steep surfaces	612	2,576	430,773	167	704
17 Alpine pasture and shepherding	112	1,553	72,353	47	646
19 Greening of arable surfaces	93	285	37,879	133	407
22 Preventive soil and water protection	1	35	1,892	54	1,892
25 Low-loss application of liquid organic fertilizers and biogas manure (m3)	1	70	70	1	70
26 Rare livestock breed*	16	130	30,043	231	1,878
28 Preservation and development of surfaces valuable in terms of nature water protection (nature conservation measure)	43	181	74,386	412	1,730
29 Animal protection measure*	552	9,472	564,391	60	1,022
Area of Natural Constraint Scheme	743	12,605	3,440,177	273	4,630
Other measures			391,227		

*number of livestock



9.5 Supporting data and statistics

- National workshop, 1 (28.09.2015)
- Interview 1-1: Project manager 1 of ZZU, Werner Lampert Consulting Company (17.12.2015)
- Interview 1-2: Project consultant of ZZU at Upper-Styrian dairy (17.12.2015)
- Interview 1-3: General Secretary of Agricultural Chamber, Murau (17.12.2015)
- Interview 1-4: Leader-manager of local action group “Holzwelt Murau” (21.12.2015)
- Interview 1-5: Project consultant of ZZU at Upper-Styrian dairy via email (31.05.2016/02.06.2016/20.01.2017)
- Interview 1-6: Project manager 2 and 3 of ZZU, Werner Lampert Beratungsges.m.b.H. (02.06.2016)
- Interview 1-7: General Secretary of Agricultural Chamber, Murau (08.06.2016)
- Interview 1-8: Leader-manager of local action group “Holzwelt Murau” (08.06.2016)
- Focus group 1-9: Areas of Natural Constraint Scheme coordinators, BMLFUW (03.11.2016)
- Focus group 1-10: Sustainability analysis experts, FIBL Austria (08.11.2016)
- Focus group 1-11: Agri-environmental Programme coordinators, BMLFUW (15.11.2016)
- Focus group 1-12: Project participants, Zeutschach, Styria (28.11.2016)
- Interview 1-13: Expert on HNV farmland in Austria, Umweltbundesamt (31.08.2016)

