

10 Transformation and diversity

Synthesis of the case studies

*Tobias Haller, Mark Bertogliati, Karina Liechti,
Martin Stuber, François-Xavier Viallon
and Rahel Wunderli*

This chapter reports on a comparative analysis of the five commons regions discussed in the book (Table 10.1) and compares the results of our research to findings from international studies on commons. It focuses on the following issues. Section 10.1 outlines some central points in the history of common property institutions and their diversity. We consider the main changes in politics (development of state and bureaucracy), the economy (industrialisation, change in relative prices for agricultural and forest-related products), and energy ages (from renewable to fossil resources). In Section 10.2 we discuss the similarities and differences of commoners' organisations regarding their history, and consider this in relation to Ostrom's design principles. In Section 10.3 we discuss how political, economic and energy-related changes are currently affecting the five commons regions. On the one hand, relative prices of common-pool resources are still decreasing, but on the other hand, pastures and forests are increasingly valued for their functional contribution to the ecosystem and landscape quality. Among the factors that explain local differences, we emphasise the role of history, the political and economic context, as well as culture and topography. We discuss the balancing strategies designed by commoners to adapt to the market context. Section 10.4 discusses the balancing act in relation to the state. We emphasise questions of inclusion and exclusion between a commoners' organisation and society, as well as state subsidies and production requirements. In Section 10.5 we discuss the differences between the five cases that arose in the previous chapters. We focus on how vulnerable or resilient these corporations are when dealing with the multiple challenges described earlier. Our central guiding question is: How can commoners' organisations balance market and state by changing their rules of membership and for local institutions, and when being forced to be more inclusive in their governance? The underlying need for institutional change triggers processes of identity building among commoners that include internal and external views on the value of commons. It also questions the role of commoners' organisations in introducing such change. We highlight the importance of finding a balance between a positive 'identity utility', finances and the partly unpaid drudgery of commoning, as these elements have a substantial effect on how resilient commoners' organisations are. Such resilience may be decisive for the

Table 10.1 Key data on current commoners' organisations in the five regions analysed

<i>Region</i>	<i>Chur</i>	<i>Uri</i>	<i>Sarnen</i>	<i>Val d'Anniviers</i>	<i>Olivone</i>
Number of commoners' organisations	3	1	Korporation comprising 4	Approx. 28	1
Current number of corporation citizens	5,755 (Chur inhabitants: 37,787)	17 <i>Korporations-bürgergemeinden</i> (Uri inhabitants: 20,908 (2020)) (Uri inhabitants: 34,704 (2018))	Minimum 846 (Sarnen inhabitants: 10,453)	Approx. 900 (Val d'Anniviers inhabitants: 2732)	772 (Olivone inhabitants: 8103)
Proportion of corporation citizens within the total population	15%	About 60%	Minimum 8%	About 33%	9.5%
Area in common ownership	Total area: ca. 4,200 ha Alpine pastures: ca. 2,100 ha Forests: ca. 1,800 ha Arable land: ca. 210 ha	Total area: 74,400 ha Alpine pastures: 24,893 ha Forests: 16,174 ha Arable land: 341 ha	Total area: 4,814 ha Alpine pastures: 1,769 ha Forests: 2,840 ha Arable land: 205 ha	Total area: 9,400 ha Alpine pastures: ca. 6,100 ha Forests: ca. 3,300 ha Vineyards: 3.5 ha	Total area: ca. 8,200 ha Alpine pastures: ca. 3,300 ha Forests: ca. 3,100 ha Other / unproductive land: ca. 1,800 ha
Proportion of common property area within the total municipal area	57% (of the total municipal area of Chur)	About 70%	56%	Forests about 90%	About 90%

continued maintenance of cultural landscape ecosystems and their biodiversity and landscape qualities. Last but not least, Section 10.6 discusses the different ways the five commoners' organisations have found to create new institutional designs that solve their problems in changing contexts. Departing from the constitutionality approach, which suggests six conditions for participatory bottom-up institution-building processes, we discuss how commoners' organisations fit into the Swiss context. While Swiss institutions secure fundamental democratic and property rights, the market and the state have a huge impact on commoners' organisations, and the latter are greatly dependent on these two external forces. We believe that Switzerland may provide a kind of laboratory for the adaptation and transformation of commoners' organisations as a result of external changes.

10.1 Common property in the long term: 'robustness' and 'sustainability'

The core of the commoners' organisations is that they are socially constituted through family in successive generations. This results in long-term continuity in the collective use of local resources, which goes back to the late Middle Ages. Elinor Ostrom captures the intergenerational perspective of these organisations in the 'robustness' described by her famous eight principles. Closely related to this is the long-term concept of 'sustainability', which focuses more on the concrete forms of use. Over the centuries, either explicit or implicit sustainability was implemented towards different goals depending on the changing energy ages (see Chapter 2).

In the 'agrarian society' – until the middle of the nineteenth century – collective forests and pastures were regulated as contested local resources. In all case study regions, the main focus was on the supply of the entitled commoners with these resources. *Hintersassen* (underprivileged residents), who were allowed to use the collective resources only to a limited extent or not at all, were excluded. It corresponds to the primacy of exclusive needs of the commoners that the resale of products from the common forests (building and firewood, litter, charcoal, etc.) was forbidden, trade with rights of use (cow rights, common litter, etc.) limited to the circle of those entitled and summering rights dependent on the livestock number that could be fed throughout the winter. These regulations did not imply an absence of the market, however. In many places, supra-regional economic interdependencies can be seen from the beginning, which decisively shaped the commoners' economy. The formation of the commoners' organisations in Chur, Sarnen and Uri was determined by the commercialisation of cattle farming, which resulted from intensified cattle trade with the towns in Northern Italy; the economy of the citizens of Chur throughout the Early Modern Period was as much characterised by transit traffic as that of Uri's corporation; migration movements affected the commoners' economy in both Uri (temporary mercenary services) and Olivone (temporary labour migration). The commoners' economy was based everywhere on the

interplay of collective and private property. This is particularly striking in the *Trattweide* (common pasture) practiced in all the study regions, which temporarily opens up private areas to collective use in spring and autumn.

In the ‘industrial society’ – from the middle of the nineteenth century to the middle of the twentieth century – the operational goals for collective forests and pastures mostly shifted from natural supply to financial yield. With the help of scientific principles, technical innovations and a better transport infrastructure, attempts were made to increase productivity and bring it closer to the maximum sustainable yield. Directives were given by the incipient national agricultural, forestry and environmental policy, which involved several levels (legislation, financial support, training). The *Schweizerischer Forstverein* and the *Schweizerischer Alpwirtschaftlicher Verein* played important roles as mediators; the latter awarded prizes for exemplary modernised alpine management. The aim was also achieved by draining collective wetlands (Chur, Uri, Sarnen). The limited circle of users was expanded by partially converting rights of use into social open systems of use based only on financial compensation (lease systems). The resulting increase in financial returns from collective resources played an important role in the realisation of social, cultural and infrastructural modernisation in the municipalities, and was particularly prominent in Chur.

The onset of the ‘consumption society’ – from the middle of the twentieth century – began an economic growth process on the basis of mass imports of crude oil at a comparatively cheap price. The yields achieved both in forestry and alpine farming were increasingly unable to keep up with the rising extraction costs. This fundamental change in relative prices, which was accompanied by other dimensions of change in the ‘consumption society’, such as mass mobility and mass tourism, had a major impact on the sustainability goals for the collective resources. There was a trend towards polarity of use. On the one hand, further intensification took place through improved transport infrastructure, machine use, fertiliser management and the targeted selection of varieties. Due to the high investment costs, however, intensification was increasingly concentrated on topographically favourable areas (e.g. Chur alps in Arosa). On the other hand, the changed conditions of the ‘consumption society’ led to the abandonment of land use in less favourably situated areas (e.g. Olivone and Val d’Anniviers), resulting in the reforestation of pastureland. The effect of external political factors on collective resources in this polarised use was ambivalent. The state supports the continuation of alpine farming and forestry through contributions for protection forests and alpine summering, but the state also supports biodiversity, natural forests and protected areas (e.g. mire landscapes). The latter subsidies aim at reducing the intensity of use. The commoners’ organisations have already opened themselves to this shift in sustainability goals, from economic production management to the manifold ecosystem services in their forestry, but less so in their alpine economy (e.g. Chur). While these last aspects can be contextualised as within the ‘age of ecology’ (since the 1970s), the following change, on the other hand, can be fully understood with the logic of the ‘consumption age’: the expansion to new forms of returns from

collective resources such as real estate and tourism has largely been completed in most of the case study organisations.

This sequence of the three energy ages, however, which is at the origin of the change in the sustainability goals in collective resources, is only one level of the long-term perspective. Another level involves the social groups and their organisational form as owners of the collective forests and pastures. Their chronological sequence, divided into ‘foundation’ in the Late Middle Ages, ‘consolidation’ in the Early Modern Period, ‘transformation’ in the nineteenth century and ‘new roles’ in the twentieth century, is not synchronic with that of the energy ages.

Commoners’ organisations were and are complex social structures in which the interests of different social classes and milieus have clashed and had to be balanced since their foundations. Far into the period of their ‘new role’ in the twentieth century, local elites were involved in the management of common goods and used them to secure their social influence. The fact that the commoners’ organisations in the nascent federal state were able to maintain their position as public-law institutions alongside the municipalities so well, was due in part to the political weight of these elites in the period of their ‘transformation’ in the nineteenth century. It is therefore important not to see commoners’ organisations per se as the antithesis of rule, that is, as quasi ‘bottom-up movements’ that opposed a ‘top-down style of rule’. Rather, they were organisations that sought to position themselves in the local or regional structures of rule with their own claim to power. This claim can be seen, for example, in the inclusion and exclusion mechanisms with which the commoners’ organisations attempted to regulate their own groups of people. The many examples of legal discrimination against non-citizens show that they succeeded in regulating them over a long period of time. However, it is also evident that the boundaries between inclusion and exclusion shifted over the centuries. The graded restrictions of use for *Hintersassen* during the ‘consolidation’ period in the Early Modern Period and the long struggle of the *Niedergelassenen* for political equality in the ‘transformation’ period in Chur indicates that the line between being entitled and not entitled needs to be further researched.

Even if commoners’ organisations are to be understood as entities that integrated different social strata, they were not able to homogenise the differences between these strata. On the contrary, they were strongly influenced by the tensions and conflicts that resulted from this. Livestock owners and non-livestock owners, heavy livestock farmers and small-scale livestock farmers – to name but two examples – had different interests of use. The higher the pressure of use due to population growth or market demands the greater the need for regulation and the more important the decision-making mechanisms. A decisive characteristic of commoners’ organisations is their political culture, which shapes the way they deal with internal conflicts and, more generally, the way they shape debates. In our case studies we find references to this debate culture in the *Schmähsonntag* (reviled Sunday) of Chur, the *Halbjahreskilchgang* in Sarnen, or in the *Landsgemeinde* of Uri – forums where the social order could

be negotiated at least symbolically, and always with precautions to reduce the potential for violence that went hand in hand with social differences.

One of Elinor Ostrom's principles describes the embedding of common property institutions in a setting of different organisations as a prerequisite for their robustness. In fact, such settings can be found in all case studies examined, whether several organisations who constitute a locality like Sarnen or a region as a 'commons landscape' like the Val d'Anniviers or the Valle di Blenio, or an organisation such as the *Korporation Uri*, which is divided into different sub-organisations. Organisational interdependence is therefore an essential element in the history of these organisations. The political map was not stable, especially in the period of their 'foundation' in the Late Middle Ages, but also in the period of 'consolidation' in the Early Modern Period, and demanded constant adaptation. In the course of the 'transformation' period during the nineteenth century, the setting was expanded by the units of the nation state: the Confederation, the cantons and the municipalities. They have since become the politically dominant organisations with which the commoners' organisations have to come to terms. However, even if the dominance of these state actors has made commoners' organisations less influential – for example, in the loss of responsibility for the care of the poor – they have by no means become obsolete, at least as far as the management and regulation of their territory is concerned. As landowners in the cases studied, they have succeeded in positioning themselves as relevant organisations in land policy in the period of their 'new roles' in the twentieth century – for example in the tourist infrastructure of the Val d'Anniviers or on the Chur alps in Arosa. The negotiations between the federal and cantonal representatives and the corporation representatives in Sarnen on mire landscape protection also show that the state authorities are dependent on the commoners' organisations when it comes to enforcing land-use regulations. Political interdependence is and remains for commoners' organisations a balancing act between competition and demarcation on the one hand, and cooperation and complementarity on the other.

10.2 Common property and power – the theoretical commons literature

We now discuss the establishment of common property regimes in the five regions analysed and try to establish connections with the theoretical commons literature. In addition to the importance of collective action emphasised by Ostrom, we argue that the power constellations play a key role in the emergence and development of the commons (see Section 10.3). We emphasise the role of local elites and the importance of the market integration of common-pool resources to explain the development of long-standing commoners' organisations.

Rule formalisation processes before 1800

Institutions for the management of common agricultural lands, alpine pastures and forests were formalised between the thirteenth and the fifteenth centuries

in all the regions analysed, and included two elements: first, the definition of members (mostly called citizens of the respective commoners' organisations) and the boundaries of the commonly owned areas; and second, the establishment of rules regulating access, timing and members' duties and responsibilities. Apart from common land, farmers often had private plots of arable land as well as meadows used for hay production. In the case of today's *Korporation Uri*, called the *Land Uri* before the nineteenth century, the big commoners' organisation managed to install its authority over the many sub-organisations by legitimising their written rules for using resources. Similarly, in the Early Modern Period the commoners of Chur defined ownership and use rules of forests, common fields and pastures that were bought in Arosa. Sarnen, in the canton of Obwalden, saw the development of four commoners' organisations, which adapted their regulations according to different environmental and social settings. In Val d'Anniviers, the ownership and management rested for a long time in the hands of nobles and the church from the Rhône valley downstream. The codification of common property and management rules applying to forests and pastures, as well as village life, occurred in the sixteenth century. At that time, the adoption of the cantonal statutes led to the rapid codification of previously unwritten village rules, together with the increased freedom of commoners in the valley and the six villages. These institutions were also sanctioned by the bishop. Belonging to an autochthonous family in a village was a key condition in order to obtain rights to common pastures and forests, as well as vineyards. Finally, Olivone, located in the Italian-speaking canton of Ticino, enacted a common property union between several villages, established in written documents. These documents indicate that alpine pastures and forests were bought or taken from other communities and noble landlords during the formation of the commoners' organisation. As in the other cases, informal rules of membership and access rights to the common pool resources were codified in later centuries. The current term *patriziati*, used for the Olivone commoners' organisation, is of very recent history and stems from the nineteenth century. It thus reflects a newer phenomenon, but is a denomination stemming from the existence of century-old collective rights on communal resource.

One could argue that these developments are soundly within Ostrom's design principles, especially those where the transaction cost argument is concerned (clear membership and boundaries, monitoring and graduated sanctions). Most of the cases show that the formalisation and codification of these design principles took place during the Late Middle Ages and the Early Modern Period. In particular, the location of most boundaries was clarified, rules of membership (or citizenship) were defined for a commoners' organisation, and conflict resolution, and mechanisms for monitoring and sanctions were implemented. These changes are not only the outcome of internal local processes. Rather, all cases show that local commoners were embedded in the supra-regional markets around urban centres, especially those in northern Italy. The export of resources related to pastures (cheese and meat), as well as

timber from these areas, started to increase, and the pressure on common-pool resources rose. Boundaries and related conflict resolution mechanisms therefore had to be codified, as did measures for monitoring and sanctioning. *Land Uri* is a case in point, where market-related interests (livestock trade) went hand in hand with a kind of conquest of new territory, first of all alpine pastures in neighbouring regions. The interests of the elite had a forceful effect in these developments. Often, but not always, they were also the driving forces behind political self-determination processes, when commoners' organisations tried to become independent of the nobles and the church. Many of these organisations used changes in the structures of rule to progressively buy themselves out of the feudal contract. They became more self-regulated, obtaining titles and communal rights to resources. In places such as Uri, Chur, Val d'Anniviers and Olivone, local elite families would try to take over leadership after breaking away from feudal control. Such processes are of interest, as the bargaining power of these elites was rising. From an internal perspective it is important to say that although the local elite had more power than normal commoners, they were still accountable to the other members of the commoners' organisations and were not able to fully control the resources. This analysis of a negotiated political process as the basis of common property institutions is a central feature of all five commoners' organisations, despite their differences. Further, production was not just for subsistence, but incorporated into emerging market contexts. These elements echo institutional approaches which, in contrast to Ostrom, include the notions of external changes and power of different actors in the model. Such processes were also exacerbated by the generally lesser extent to which the feudal order pushed through in the mountain areas of Switzerland. This, however, did not prevent commoners' organisations from conquering other areas. A case in point is *Land Uri*, which invaded the Leventina region in the Italian-speaking part of Switzerland towards the end of fifteenth century and controlled the region until the end of the *ancien régime*. Generally speaking, however, these processes of self-regulation were the historic basis for the creation of diverse resource governance modes, each of them adapted to a specific local ecological, political and economic context, and at the same time – by introducing and adapting resource use institutions (rules and regulations) – they also shaped what we call the cultural landscape ecosystems through several forms of transhumance patterns and the continued use of pastures and forests.

Changes in bargaining power in the nineteenth century

The liberal-radical spirit brought to Switzerland by the French Revolution favoured a unitary conception of the state and a political system supporting individual rights against pre-existing communitarian rights. Later, the Federal Constitution of 1848 was a compromise between the progressive parts of the country who had won the civil war (*Sonderbundskrieg*) and the conservative cantons as its losers. As a compromise, the cantons were allowed a high level of

self-organisation, which in some cases strengthened the position of the commoners' organisations. In some cases – as in Uri – they were given a high level of autonomy. In others, local elites had to include new members and adapt the rules of access to resource areas. Such changes were particularly visible in Chur, and slightly less so for the French-speaking and the Ticino regions. In the canton of Valais for example, municipalities replaced commoners' organisations in their function as local authorities. Consequently, commoners' organisations lost most of their political competencies. While the formal rules still remained intact, informal inclusion and exclusion rules had to be negotiated internally in order not to be undermined from outside.

Regarding the notion of property and forms of organisation, the case studies show that on the eve of major political and economic changes in the nineteenth century, there was a very heterogeneous picture of commoners' organisations. The cases analysed refer to different denominations, such as *Bürgergemeinde*, *Korporation*, *bourgeoisie* or *patriziati*, with different levels of centralised rules (higher in Uri and Chur), and specific forms of decentralisation in Sarnen, Olivone and Val d'Anniviers. This phase is of interest, as all the commoners' organisations analysed could, in one way or another, maintain the common property institutions of forests and pastures. The legal form on which most of the commoners' organisations are based today, however, stems from the time in which all these areas became part of the cantons of the Swiss Federal State, after 1848. This time is characterised by discussion about whether the commons should be divided into individual ownership or not. In all the cases, the outcome of the debates was the maintenance of the common property institutions and organisations. However, these newly formed commoners' organisations were then excluded from the political governance context, which was dominated by the cantons and the municipalities. There were differences regarding the bargaining power of the commoners' organisations in relation to the power of the state organisations: the commoners' organisations of Uri and Chur seem to have maintained more bargaining power than the ones in the other case studies. This does not mean greater independence, however; on the contrary: the *Bürgergemeinde* Chur and the *Korporation* Uri secured their influence precisely through their close ties with the municipality of Chur, respectively with the canton of Uri. Moreover, in the upper valleys of the cantons of Ticino and Valais the number of inhabitants was so low and the villages were so small as to make it often difficult until the end of the nineteenth century to make a real distinction between political communities and commoners' organisations, precisely because these institutions were composed of, and managed by the same families.

10.3 Balance with the market in a 'glocal' economy

The transition to the 'consumption society' from the middle of the twentieth century led to a precarious income situation for forests and pastures. Fossil fuel energy reduced the demand for timber and wood charcoal production

and made these resources rather uninteresting. Agro-industrial processes also substantially reduced relative prices for agriculture, meat and dairy generally. The resources changed from being a source of high value used for capital accumulation, to resources for which the maintenance costs exceeded the pure economic benefits. The economic value of the forests diminished with the decreasing income from wood production, and became primarily linked to forest protection functions, safeguarding infrastructure from avalanches, rock falls and landslides. In the case of alpine pastures, new value arose from agricultural subsidies (see Section 10.4).

Wage labour was undergoing the opposite effect: mountain areas especially need a great deal of physical labour to maintain infrastructure and landscapes for continued production. The value of labour rose because new infrastructure and new industries required a great deal of labour, and offered relatively high prices for wage labour. This also led to changes in the economic value of land and a concentration of production in areas located in the valley bottom that had good infrastructure.

It also restrained the bargaining power of commoners' organisations, which were affected in different ways. Differences in the organisations' bargaining power on the market can be explained by the size of organisations, locations, the different types of resources they own, the use they make of available resources, and the skills they use to engage in new activities. Regarding the latter, commoners' organisations tried to adapt to the decline in market value for natural resources by cross-subsidising resource management with other resources and/or activities.

There were debates in all cases analysed, about how to make production more profitable and more efficient, for example by investing in road networks, which increase the accessibility of alpine pastures and forest areas, and thus reduce labour demand. The high costs of these improvements can only be met with a cross-diversification of income. Cross-diversification means that balance with the market requires successful commoners' organisations to expose some of the competitive common-pool resources to the market to keep other parts of the commons afloat that could not compete with the market otherwise. Such strategies only work, however, if marketable resources are available. For example, an organisation may possess land that is zoned for construction and may be sold or used for real estate, water that can be used for hydropower, or pasture areas that can be used for tourism. These economic uses may also contribute to building new infrastructure that increases the niche profitability of traditional common-pool related resources, such as milk for highly renowned cheese production in the alpine pastures in Arosa, which belong to the commoners' organisation of Chur or differentiated alpine cheese production and direct sales from the pasture in Val d'Anniviers. If these balancing acts are successful, then they may become a new institutional norm alien to normal capitalist profit-making. Such a norm does not increase investments and gains in order to generate profit as such, but to make profit so that the respective sector cross-subsidises the loss-making activities in the commoners' portfolio. Such

cross-subsidisation allows the whole commons to be saved, including pasture and forests, rather than simply retaining the more profitable areas.

This trend was observed in all the regions studied, but the differences between the cases are of interest, as not all commoners' organisations were affected in the same way. What is certain so far is that some of the organisations owned at least one resource which developed into a considerable source of income during the twentieth century. In the *Korporation Uri* it was the water bodies that could be used for hydroelectric power and the quarries. The *Bürgergemeinde Chur* was able to stabilise and expand its financial situation through land ownership in the town and the alps in the tourism hotspot of Arosa. The *Freiteil* corporation in Sarnen benefited from the fact that its land ownership was mainly located in the valley bottom and in the central settlement area of the town. Other organisations, notably the *Patriziato* of Olivone, but also some corporations in Sarnen, owned large areas of woodland and pastureland, but their value declined in the course of the twentieth century and it can be assumed that the prices paid for building land in their areas were also lower than in the settlement centres.

Overall, these organisations balanced themselves between maintaining operations in some areas despite high costs, and cross-financing operations through revenue from other areas, such as real estate. The Sarnen case shows a great differentiation between commoners' organisations, ranging from organisations remaining structurally in agriculture to organisations with a large level of economic differentiation. Other commoners' organisations were either too small, or too politically fragmented and disintegrated, to face the bargaining power of the authorities who were implementing and shaping the federal state's policies. In Val d'Anniviers, economic change led to a great reduction in the number of alpine pastures used as commons. The reduction of financial income from wood prompted the merging of forest consortia, and the engagement with new activities outside the forestry sector. In Olivone, the alpine pastures were partly abandoned, especially in the steepest areas.

Adapting to market conditions requires flexible means of administering production and of calculating costs. Managerial expertise and professionalisation are needed. The commoners' organisations coped with this demand to a different degree, which also has an effect on the habitus of respective organisations. For instance, Uri, Chur, forestry in Val d'Anniviers, and some Sarnen corporations show high levels of professionalisation. Unfortunately, there is a mismatch between demands for skilled labour and payment. While market-oriented work is financed through sales or subsidies, the cornerstone of the institutional setting governing the commons – monitoring and sanctioning – is done through labour stemming from the commoners' organisations, and is not always paid accordingly. Here, commoners' organisations face the problem that the maintenance work for their property cannot be fully paid in cash. These workers are mostly elderly and very experienced people and replacing them in the future will be difficult. While there is also a younger generation of commoners (farmers and non-farmers) to supplement the next generation of

commoners' administrators, ensuring the continuity of the work, and stopping the erosion of the local knowledge of commoners in charge of controlling the maintenance of the common-pool resources are challenges for most commoners' organisations. The *Korporation Uri* seems to be able to take care of this problem, as it is large, integrated (see Section 10.4) and has options for finding the appropriate people. A further strategy is to combine commoners' sub-organisations to achieve synergies in management tasks. The case studies provide examples in forestry, where commoners' organisations get together, create joint organisations, invest collectively and with external partners in alternative heating systems, and cooperate with municipal authorities. Such strategies require new forms of integration with state structures and wider society.

10.4 Level of integration into society and balancing with the state

There is currently an impression that the commoners' organisations are at another crossroads of their existence: they have mainly been operating under exclusive membership and with co-ownership of resources in a given area. The corollary is the exclusion of other users, mostly newcomers and immigrants, who live in the same area. As the number of farmers has significantly reduced, however, commoners' organisations are under pressure to revise the basic rules regarding user rights in their organisations. Different strategies for membership are followed in the case studies: basically maintaining the status quo but including the female line (Uri and Sarnen); restricting participation (exclusion) (Val d'Anniviers); and acquiring new members (inclusion) (Chur). In Anniviers, the 2008 municipal merging was accompanied by a vote rejecting the merging of the valley's *bourgeoisies*. Such rejection may hinder new citizens in the municipality from acquiring the expensive membership of a specific *bourgeoisie*, as they may not identify with a specific sub-area of the valley.

In Valais, the competency to admit new citizens was transferred from commoners' organisations to municipalities in the 2000s. In Ticino, the admission of new citizens into the *patriziati* is governed by a cantonal law limiting the margins of manoeuvre for commoners' organisations. The use of the pastoral alpine commons was in most cases opened to non-members in understocking situations. In fact, the pasture and wild hay meadows in the steepest areas had to be used in order to prevent degradation due to the encroachment of shrubs (e.g. Val d'Anniviers, Olivone). The opposite type of management as that from the eighteenth and nineteenth centuries, where operational rules were enforced to exclude outsiders, is now present in some cases, while control is still enforced by commoners' organisations. The prestige attached to commoners' organisations offices has decreased, and/or some functions have been largely reduced to symbolic tasks (e.g. Val d'Anniviers). Many commoners' organisations try to strengthen their collaboration with the municipalities and the cantons, and collaborate with them on specific issues (e.g. district heating with wood, tourism, nature protection, hazards).

The commoners' organisations have to face, however, the external discourse claiming that a minority is controlling large tracks of land with limited direct benefit to the public. Those commoners' organisations that are able to generate extra benefits, such as in Uri, Chur and partly in Sarnen, therefore try to fulfil public functions by supporting structures and activities from which the entire municipality benefits (e.g. culture, affordable housing). They have thus become aware that they need to redistribute their gains not just among the members, but also among all residents in an area in order to increase social acceptance and political legitimacy. This also includes narratives of the provision of landscape services by the commoners' organisations, which are targeted towards the general public. Commoners' organisations that have little of value to redistribute, except membership, put an emphasis on the preservation of their cultural heritage and of their identity. In Val d'Anniviers for example, commoners' organisations use heritage preservation as a means to increase their visibility to the residents, as well as to encourage tourism. The corporations also thus differ in their identity as regards their importance to the general public. A dominant discourse in all commoners' organisations was that their work, their function and their knowledge was not adequately understood by the general public and that the work they put into maintaining the commons, and providing ecosystem services, is not adequately perceived and esteemed.

The lack of recognition from the general public is also important with regard to the debate concerning state policies and the payment of subsidies. All representatives of commoners' organisations agree that without these subsidies, the governance of the commons could not be upheld. Most of these subsidies are conditional direct payments. For alpine pastures, these are: summer pasturing payments, biodiversity payments, cultural landscape payments, subsidies for infrastructure and so on. For forests, these are: subsidies paid for protective forests and other forest services, subsidies for infrastructure but also for conservation goals and improving the recreational functions. Subsidies reflect the general view of the Federal Government and the cantons, that the Swiss agricultural system cannot survive and fulfil its ecological function and ecosystem services if it is fully exposed to the global market. The state acknowledges the important role of pasture and forest use and management, and provides subsidies for their maintenance. The payment of these subsidies depends upon a set of criteria whose fulfilment is associated with higher costs for alpine producers. These costs are further increased by environmental and nature protection laws which protect ecosystem services and the intrinsic values of nature and landscape. However, all cases analysed showed that subsidies often do not cover all the costs of resource management, which is a great challenge for the managing organisations, and requires, among other things, the cross-subsidising of resource use (see Section 10.3).

In the ongoing debate about agricultural policy and subsidies, there is a narrative about farming households 'getting subsidies while at the same time polluting the environment', which is criticised by the commoners in all our cases. Environmentalists stress that today's farming in the alpine areas also has much

more environmental impact than in former times. Roads in the alpine area and their negative ecological impact are particularly hotly debated. Such a narrative is challenged by commoners' organisations, which develop counter-narratives that place an emphasis on the amount of work involved in the maintenance of cultural landscape ecosystems, economic constraints, their work for the general public, their high degree of local knowledge, as well as their contribution to sustainable development. While the state and other actors outline the importance of regulating the use of commons, commoners' organisations perceive local practices, local knowledge, and their long-term perspective, as solutions for resource-management-related problems.

In several commoners' organisations we heard the complaint that external experts had not been knowledgeable about the practical heterogeneous cultural landscape contexts, and that they had given little consideration to the ecological conditions created by the cultural transformations in these landscapes over centuries. In the *Korporation Uri*, herders hired by the corporation complain that scientists assessing biodiversity payments do not consider topography in relation to exposition, and its impact on biodiversity. Further, it was mentioned that the regulations for summering contributions do not address the issue that the number of animals with access to the pastures should be lowered due to the higher weight of the new cow breeds. Similarly, in Sarnen, representatives of commoners' organisations criticised the views of environmental experts as regards measures for the protection of mire landscapes. The commoners' organisations therefore need, on the one hand, to engage in the discourses of the 'era of ecology' and to integrate demands from the state and society. On the other hand, they want to maintain their legally secured independence of ownership and management and use of their common property. Finally, commoners' organisations are in a weaker position and thus have to perform a balancing act when it comes to the economic power of the state. Diverse and often conflicting types of local and external environmental knowledge and exposure to the way environmental laws are implemented are a great challenge for them.

10.5 Commoners' organisations and their resilience

This leads us to the issue of the resilience of commoners' organisations in their capacity to continue using the commons despite significant social, economic and political changes. This section discusses the capacity of commoners' organisations to recover from stress.

The commoners' organisations under analysis have shown remarkable robustness as institutional settings. Despite major changes and the various challenges over the centuries, they have all maintained the basic commoners organisational structure, and related institutional major settings. According to Ostrom's design principles, especially those about reducing transaction costs (such as boundary/membership as well as monitoring and sanctioning), commoners' organisations seem to be robust at the moment. Ostrom's analysis in

Governing the Commons (1990), however, lacks a view of the economic and ecological resilience that these cases entail (see Chapter 4). While the institutional setting seems to be robust, there are a number of issues. First, the commoners' organisations have an increasing number of tasks to perform, criteria to meet, and management responsibilities to bear. This increase in workload relates to the growing complexity of the context within which commoners' organisations operate. Chur, Uri, some of the Sarnen commoners' organisations and forestry activities in Anniviers have taken steps to professionalise these tasks, however, much of the work connected to smaller commoners' organisations is done either on a voluntary or a partly unpaid labour basis. This particularly involves the supervision tasks.

A second issue – as outlined above – is economic resilience. Commoners' organisations that are not able to diversify their activities and do not have much bargaining power vis-à-vis municipalities, cantons and the state face greater hardship in meeting out-of-pocket expenditure for vital issues such as those previously known as miscellaneous expenses. This means that these organisations have few, or no, reserves to meet basic investments such as road maintenance, repairing cheese-making facilities, other infrastructure maintenance, the additional costs of forestry services or additional claims related to environmental legislation. This economic vulnerability adds to generational vulnerability and threatens to undermine resilience in maintaining forests and pastures. Under such conditions, the important investments for economic diversification that would be required to reduce vulnerability and that could reinforce resilience in these domains are also limited. Current discussions in the cases considered are less about new ideas than how to cope with current problems, which also reduces the capacity to innovate.

Third, this leads us to the issue of organisational vulnerability, which has been hinted at already regarding the generational problem. In cases where the commoners' organisation still has political weight and power – such as the *Korporation Uri* – or where it offers social integration and an opportunity to gain professional expertise, young people are interested in taking on responsibilities or engaging in new activities. In other cases analysed, such as Olivone and Val d'Anniviers, interest is dwindling. This leads to another issue that was alluded to in Chapter 4: local actors always had an interest – from a local perspective perceived as an emotional 'utility' – in maintaining the cultural landscape ecosystem, because this was their livelihood, and the workload (drudgery) did not exceed the subsistence-related utility function. This utility function also applied to elites within the commoners' organisations. These elites had to be accountable and also had to see that non-commoners received a share of the common-pool resources in order to remain in power. Later, with the changing relative prices for common pool resources and related reductions in income, the maintenance became more and more important and exceeded the utility. In all cases, however, especially in the discussions with the monitoring personnel of the commoners' organisations, there was a sense of positive utility in maintaining the landscape. Maintaining the cultural landscape gave a

sense of pride and identity, perhaps as a reaction to criticism from outsiders. In this sense, as many anthropologists teach, it is precisely alterity that feeds identity. The representatives interviewed also emphasised the importance of perpetuating the work of their ancestors, and remembering what life was like for previous generations. We thus speak of a very strong ‘identity utility’, which until now was able to provide a counterbalance to the economic drudgery of working the commons. With the controversial debates on agricultural subsidies mentioned above, the perceived drudgery of the work may exceed the positive utility function, and the balance between these dimensions may be lost. In other words, all the unpaid extra work put into the maintenance of the cultural landscape ecosystem would be undermined, and the resilience capacity of the cultural landscape ecosystem would be at risk.

We have tried to show in a qualitative sense where the different commoners’ organisations stand in terms of their ability to be economically resilient and less vulnerable. This relates to the bargaining power that they perceived to have in order to be able to decide on their own and being less pressured by state and canton as well as by market actors and conditions. This ability buffers economically difficult situations of commoners’ organisations and maintains the possibility to retain their say in decisions. What we propose here is not a ranking but a relational positioning in a matrix of resilience and bargaining power. It indicates that Uri and Chur, as well as three Sarnen corporations, have better potential to cross-subsidise pastures and forests via other revenues, and that they also have more power to make decisions. This, we argue, is less possible in other commoners’ organisations, including one other rural corporation in Sarnen, as well as in Olivone and Val d’Anniviers (see Figure 10.1).

In order to contextualise the strategies of individual commoners’ organisations regarding their common property institutions and their respective resilience as discussed, we propose to use an adapted version of the Ensminger model (see Chapter 4) which helps to show basic trends in the interrelationships between external factors in the realms of policy, economy and society, with the internal contexts that form a kind of action arena of interacting elements. Changing relative prizes related to changing external variables leads to changes and different meanings of the value of the commons (agricultural land, pastures and forests). These changes then effect the internal system of the corporations, affecting their bargaining power, their organisation, the institutions they select and the ideology they use to legitimise their actions and institutional choices. These factors, in turn, also shape the meaning that is attributed to external changes (via relative prizes).

Figure 10.2, which is generalised based on the Sarnen case study, tries to capture the external changes leading to a change of relative prizes: whereas the economic value of common-pool resources such as pastures and forests and their related products is decreasing, at the same time the importance of ecosystem and landscape services, whose maintenance is partly compensated, is rising. This affects local bargaining power and, for instance, increases issues in the legitimacy of the commoners’ organisations’ property ownership under

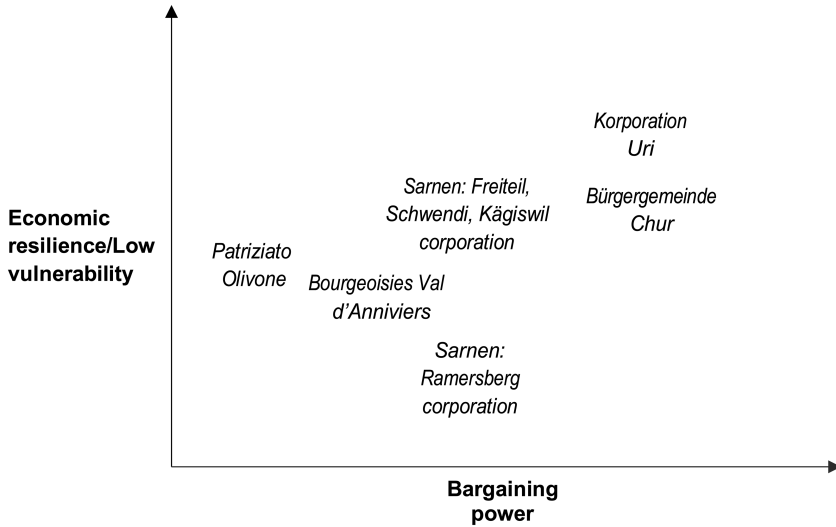


Figure 10.1 Matrix economic resilience/vulnerability and bargaining power in Chur, Uri, Sarnen, Val d'Anniviers and Olivone (source: case studies by Wunderli, Stuber, Liechti, Viallon, Bertogliati compiled by Haller for this volume, rights with authors).

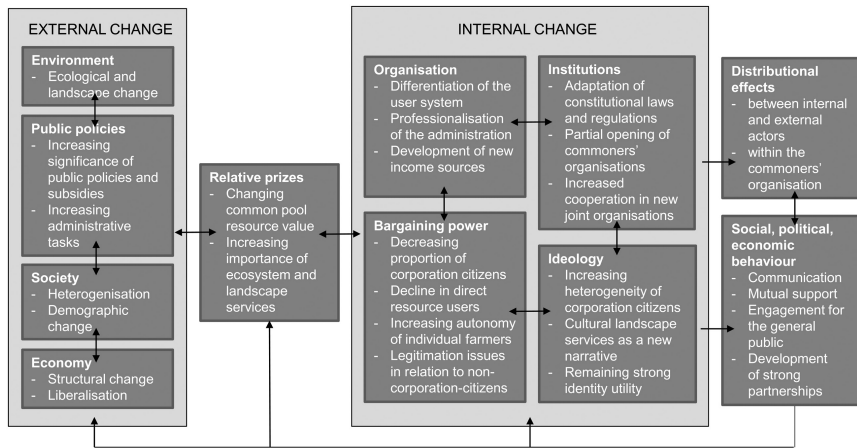


Figure 10.2 Institutional change in Swiss commoners' organisations in recent decades (generalised based on the Sarnen case study and on an adapted model by Ensminger 1992, revised by Haller 2019, see Chapter 4).

a decreased proportion of commoners. This and other internal processes may lead to the adaptation of the organisation of the corporation and its institutions, among other things related to the implementation of public policies (e.g. pasture use regulations), but also regarding internal corporation structures and citizenship regulations. It also may lead to a change of economic practices, such as the development of new income sources and the internal subsidising of less profitable income sources such as forestry and alpine pastures use. Such institutional changes are ideologically legitimated with narratives on maintaining the cultural landscape ecosystem as such, and strengthened with the discourse of a unifying identity among an increasing heterogeneity of corporation citizens. This may lead to new forms of redistribution of gain and of collective action towards more cooperation between commoners' organisations and with the non-commoners' world. However, these are just broad trends and the case studies show clearly that commoners' organisations differ in their constellations and thus have higher or lower power-specific options to cope with changes in relative prices, and are thus more or less resilient.

10.6 Conclusions: Switzerland as a laboratory for the adaptation of commoners' organisations to external changes and for their transformation

What are the lessons from the commoners' organisations that try to address the challenges noted above, and what is the contribution of the Swiss cases to the general discussion on grassroot strategies to address such challenges? One important feature of the Swiss commoners' organisations is that the communal property is guaranteed by federal law and that commoners may decide what to do with this communal property as long as legislative requirements and environmental standards are met. We found a series of social and integrational innovations which make the Swiss commons case a type of laboratory. In a context where property rights are secured and the state provides subsidies to contribute to the financial burden of commons management, local actors may adopt a panoply of local strategies to maintain and develop the commons. The challenge is, having survived the political pressures of the Helvetic Republic, how the commoners' organisations survive the pressure from the market and the state's rules after major changes in the twentieth and the twenty-first centuries with changed relative prices, new energy ages and industrial and post-industrial transformations. Our observations show that a successful implementation of strategies to maintain the commons depends on the involvement of all local actors, so as to create a sense of ownership of the rules. This sense of ownership also helps to lower the vulnerability of commoners' organisations, and strengthens their resilience. The Swiss cases show the strategies developed and tested in this political-economic and ecological lab of guaranteed property rights for these groups also being exposed to certain market conditions. We will outline several strategic elements of this lab and how it relates to bottom-up institution building processes in other parts of the world.

Elements of the 'Swiss commons lab' include the following: first, the issue of income diversification is central and so is the use of the profits generated to maintain other fields of action. Such balancing with the market by cross-subsidising resource management lowers vulnerability and increases the resilience of commoners' organisations. Land for construction and other resources with high long-term yielding relative prices (real estate, hydropower etc.), and engagement with new activities, helps to increase internal revenues. These revenues are used to cross-subsidise the communal forests and pastures that make small profits, or even losses. The commoners' organisations that manage to do this have proven to be more resilient in other areas of resource management. This actually follows a relatively traditional peasant economic minimax strategy and the focus on safe-guarding subsistence features in general that is now also extended to broader aspects of the concerned groups and of society at large. Consequently, the economic resilience of resource management increases and their vulnerability decreases. There is a potential gap, however, between these new means of generating income and the traditional functions of commoners' organisations as custodians of the land.

The second lab element detected is the use of synergies. As outlined above, this is a critical issue and it not only has positive aspects, but it became clear that economies of scale (or reducing drudgery using positive aspects of economy of scale) is an important strategy used by several of the commoners' organisations, especially in forestry management and administration. There is also a need to develop this fusion process in organic ways so that partners with different bargaining power do not feel left out. The commoners' organisations of Sarnen (with the establishment of a common forest consortium for all four corporations) and Val d'Anniviers are good examples of such a process of fusion processes that took time. They show that this needs to be done with care and has to incorporate all interest groups in order to achieve a sense of ownership over this change process. The same process (creation of a forest consortium representing all the valley corporations) is also underway in the Blenio valley, but it is still early to evaluate the results.

A third element is how to deal in a new way with the inclusion/exclusion issues: there are a number of innovations here due to allowing common resources to non-members and to enlarging membership by reducing the financial demands and/or to changing membership regulations (as by the commoners' organisation in Chur, for example). Not all commoners' organisations are following this strategy, however, and are maintaining exclusivity because they fear, among other things, a loss of organisational identity. This reaction was particularly visible in the municipal merging in Val d'Anniviers (see Section 10.3). In other cases, such as in the canton of Ticino, it is the state that has set specific limits to exclusivism following debates during the twentieth century that have even called the existence of the *patriziati* into question.

The fourth element involved what all commoners' organisations try to do to create a symbolic bond with their members, and to show that they are important for the general public. This is done by trying to maintain good relationships

with both cantonal/municipal representatives and with the general public. In Anniviers, bonding occurs through the organisation of aperitifs for new citizens, tourists interested in local traditions, and religious feasts. In all cases, trying to show the importance of commoners' organisations also on a symbolic level is a key and important strategy in the 'Swiss commons lab', in which the currency of authentic locality is central (reunions, rituals etc.). The recovery and improvement of these aspects is vital, especially where the value of resources and the bargaining power of corporations is low. This suggests that storytelling may also become an important strategic tool for commoners' organisations.

This leads to the fifth element, which involves exposing the commoners' identity discourse in a positive way in order not to be trapped by the perceived negative discursive labelling. Here the wealthier organisations can use their financial capital to show their commitment to wider society and help municipalities and cantons to fulfil their tasks. One central aspect in this respect is the use of ecological symbols by commoners' organisations, such as claiming that protecting nature means maintaining their integral cultural landscape through their sustainable use of pastures and forests. This leads to contestation with other actors over the hegemonic meaning of ecologically sound management and the commoners' organisations' ecological and social responsibility. An innovation in this sphere is to present the commoners' organisations as being those still managing the cultural landscape ecosystem for the common good (and not for the commoners' good only). This is also a part of the 'Swiss commons lab' where we see differences between the commoners' organisations that are able to publicly state this. Some of them are more capable of successfully maintaining a self-image and self-labelling, such as Uri, Chur and Sarnen, but the others, however, perform less successfully. In Val d'Anniviers, wine-making and drinking traditions are important, but this rests on a more cultural and symbolic capital of authentic belonging, rather than maintaining the cultural landscape for economic (tourism) and ecological benefits for the common good.

There is a sixth laboratory element generally dealing with how to collaborate with municipalities, cantonal administration and environmental NGOs, and on how to act in reciprocity with these organisations. Sharing tasks of governance and the management of duties on different levels of subsidiarity is a central element (also depending on bargaining power). When positioning themselves as reliable partners in maintaining both ecosystem and landscape services and in societal matters, commoners' organisations contribute to sustainable development by maintaining a dynamic diversity of structures and providing locally adapted and grounded means of dealing with today's ecological and societal challenges. Such strategic cooperation between commoners' organisations and other actors includes innovations for alternative energy provision (e.g. district heating with wood) and tourism infrastructure (e.g. ski-lifts, restaurants).

But the 'Swiss commons lab' also shows the diverse adaptations to the diverse localities that stem from a different history, topography and natural endowment. This can be considered a strength of the 'Swiss commons lab', meaning the capacity to be able to also find decentralised separate solutions within

a single federal legal framework. A wide range of adaptation strategies is also interesting from an ecological point of view in order to find sustainability pathways in the context of global changes, which particularly affect the alpine area.

All these elements echo to a certain degree the lessons learned from the Global South about gaining a sense of ownership in the bottom-up institution-building processes (constitutionality). This approach, which stems from the empirical analysis of rare cases of positive commons governance from below, shows that these new institutions could be built only because the process was perceived by all actors as fair and really participatory. The six elements of constitutionality that could be detected from several cases on fisheries, forestry and pasture management included: (1) a local perceived need to change, (2) processes that level power asymmetries, (3) pre-existing institutions, (4) external catalysing agents for fair platforms, (5) innovation and social learning incorporating local ecological knowledge, and (6) state acknowledgment. In the 'Swiss commons lab' context, as heterogeneous as the cases are, we can however still detect communalities related to the six elements of constitutionality: the first condition is partially met, as actors are very heterogeneous in their ideas about whether and how to change the institutional setting. In Val d'Anniviers, as an example, most representatives do not support changes to the commoners' organisation they belong to. Rather, they conceive themselves as guardians of the past, of traditions, or heritage. In Sarnen, in contrast, the awareness that change is necessary is relatively high. Element (2), processes that level power asymmetries, is crucial, as there are options to do so via the Swiss political system, but there is a need to pay attention to dynamics inside the commoners' organisations, as well as to their relationships with the outside world. Depending on the bargaining power of commoners' organisations related to municipalities and the canton, this element is not present in all the cases. Element (3), pre-existing institutions, is really a strong case to build on, as perhaps the greatest capital of Swiss commoners' organisations is really the pre-existing institutions, while for (4), external catalysing agents, there are several mediating organisations (see Chapter 3) but this, so we argue, still needs to be worked on, especially in relation to commoners' organisations that have less bargaining power and are less able to be competitive as regards the outside world. Element (5), innovation and social learning, still needs to be improved, as many cases show the perception that local actors do not feel that their local ecological knowledge is really respected when it comes to the discussion of interpreting ecologic processes. Many representatives of commoners' organisations thus wish that local ecological knowledge was more incorporated in the drafting of the rules of subsidies. But there is also a need for more openness on the part of the commoners' organisations to the results of the environmental sciences and to the shift from production goals to environmental goals. Element (6), state acknowledgement, finally, is very strong but also paradoxically very weak in Switzerland. The strong element comes from guaranteed property rights, as well as the level of financial support provided; however, the involvement of the commoners' organisations as owners of between about

60 and 90% of the respective alpine pastures and forests (in our case studies) in a rule-defining process from the beginning is not guaranteed. The way that commoners' organisations balance themselves with the market and with the state particularly needs to be examined, as well as the heterogeneity of the path dependencies of these organisations and their common property institutions.

Commoners' organisations with a strong social structure and cohesion are vital for the sustainable use of natural resources and the provision of ecosystem and landscape services. The advantages of such systems are: a long-term perspective due to a focus on maintaining resources, and not on making a profit, and on keeping the resource base for future generations; fast reactivity/responsiveness due to straightforward small structures and organisational freedom, while at the same time acting as a brake against too fast and too fundamental changes; closeness to the everyday life of the users due to grounded regulations; and strong identification potential and sense of place and ownership due to long-standing entities. The large areas of land managed by commoners' organisations could thus be an asset in the implementation of the sustainable development goals (SDGs) in Switzerland. Granting these organisations a more prominent and participatory role in the shaping of the SDGs would offer solutions accepted by all parties, tailored to the region of implementation, and likely to be implemented successfully.

There is still a need for action, because the balance with market and state might easily be lost if commoners' organisations are not strengthened, and if they lose their bargaining power. While the level of self-determination is a key factor in crafting and adapting rules, corporations each struggle in their own way to keep the balance between utility of identity (a strong feeling of being important actors shaping the cultural landscape) on the one hand, and both the work and the financial drudgery of maintaining the common property of cultural landscape ecosystems on the other hand. The crucial element in this balance is whether the commoners still value their commons and whether the farming community is still powerful enough. The Swiss case shows clearly that locally adapted principles are important even within a spatially small context, and that creating platforms so that these can be discussed and implemented in a participatory way seems to be key. This would, for example, involve a broad discussion on how the future of subsidies should be institutionally shaped, how societal recognition can be given to the commoners' organisations and how duties should be distributed among them. Finally, we propose that the Swiss policy implementing the Sustainable Development Goals (for example SDGs such as Numbers 15 (life on land), 13 (climate action), 7 (affordable and clean energy), 6 (clean water and sanitation) and 17 (partnerships)) should recognise the biggest landowners. These are the commoners' organisations, managing large parts of the country's cultural landscape ecosystems, with their biodiversity in pastures and forests and climate resilience capacities and ecosystem services. In this context, it would be of interest to put federal and cantonal governments in touch with the respective commoners' organisations and also with the Swiss association of the commoners' organisations.

These are central elements that go beyond the Swiss case, and are also global issues. The Swiss case could show that protecting common property rights and being able to define one's own local institutions does not suffice in a neo-liberal economic world. Commoner's organisations' capacity to balance is also dependent on their bargaining power in relation to other actors such as the state and its actors, which might support but also challenge the way ecological functions in the cultural landscapes are accepted. Thus, our work shows that the commoners' organisations need common property rights to be respected, but that they also need to increase their bargaining power to be acceptable players in the negotiation process enabling them to define their views on resource governance. They need to balance changes in the value of common-pool resources, create the right mix of maintaining a resource base for the future but also creating a fair amount of profit and protecting it from degradation. Using the SDGs and critically reflecting on their national implementation might be an option, not only for Swiss commons but for many commoners' organisations and groups in the Global South.

References

- Ensminger, J. (1992) *Making a Market. The Institutional Transformation of an African Society*. Cambridge: Cambridge University Press.
- Haller, T. (2019) 'Towards a new institutional political ecology: How to marry external effects, institutional change and the role of power and ideology in commons studies', in Haller, T., Breu, T., de Moor, T., Rohr, C., and Znoj, H. (eds), *The Commons in a Glocal World: Global Connections and Local Responses* (pp 90–120). London: Routledge.
- Ostrom, E. (1990) *Governing the Commons. The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.



Taylor & Francis

Taylor & Francis Group

<http://taylorandfrancis.com>