

## 1 Introduction

SCALES deals with the continuities and ruptures in the trajectories of common-pool resource (CPR) management (pastures and forests) based on common property institutions in Switzerland, taking as point of reference international research on Swiss commons (Netting 1976). Netting's work was used by Nobel Prize winning Elinor Ostrom as a Swiss case that underlined the human capability to draft robust and sustainable institutions (Ostrom 1990). This issue shall be researched further in this project. The Swiss political system of resource management allows for relatively high autonomy regarding resource management due to its decentralization and seems to be one of the reasons for the sustainable use and maintenance of its cultural landscape ecosystems. Nevertheless, over the last two centuries, local resource governance has been influenced by external political, economic and institutional changes, such as state building and globalization processes. In the course of the formation of the national state during the 19<sup>th</sup> century, long-standing local organizations, especially in the mountain areas, such as autochthonous inhabitants' associations and resource use corporations with their common property institutions were acknowledged and integrated into a new political system. Some of these adapted to changing institutional frameworks and due to their resilience still play a major role in CPR use and management. The diversity among currently active common property institutions in Switzerland is noticeably high and gives rise to international interests in the *Swiss Way* of governing CPRs over different SCALES. Their current functioning and related history, their embedment in Swiss Public Policy and local people's emic perception, aspirations and innovations as well as economic calculations as intended by SCALES are, therefore, of major interest for both the Swiss and the international community.

SCALES tends to compare CPR governance focusing on pasture and forests under robust common property regimes to actors' perceptions and adaptive innovation strategies in an interdisciplinary way. It includes the disciplines history, social anthropology/human geography, agricultural economics and political science. Based on an in depth analysis of six Swiss case studies by the historians of the project – case selected on the basis of the *longue durée* of their institutions – we move to in-depth social anthropological/human geography field studies. These analyze the emic perception of local actors in order to understand the robustness of institutions as well as adaptation and innovations in contemporary times. These perceptions constitute one basic input for broader agro-economic studies, taking into account both economic and non-economic adaptation. Furthermore, the SCALES project incorporates a political science perspective, looking at the embedment of common property institutions in the state and the cantons, featuring their own institutions and strategies of in- or exclusion and rules of subsidiary decentralization. This comprehensive inter- and trans-disciplinary approach guarantees a holistic understanding of the potential (i.e. a laboratory for the commons) and the limitations of cooperation for the international commons literature, asking these questions: A) What kind of links between public administration, communal ownership embedded in history and power relations and exposed to economic pressure, are responsible for sustainable commons adaptations and innovations to landscape ecosystems; B) What factors contribute to conflict constellations, loss of local bargaining power and decline of common property institutions and C) Which intermediary variables, such as conflicts, confrontation or wider cooperation with public administration and sectors of the economy, have an impact on the robustness and innovations of commons institutions.

## 2. Research plan

### 2.1 Current state of research

The project includes four disciplines (history, social anthropology/human geography, agrarian economics, political science), which are central to uncovering the way the commons – we will focus on pasture and forestry, but include water and other land related CPRs if necessary – are managed in Switzerland today. The current state of research will be presented separately by the individual disciplines, as there has not been much collaboration between these fields in the past, even though they partially draw on similar work.

History: International contemporary historical studies show a great interest in research on common property institutions looking at land and natural resources (see Béaur et al. 2013; De Moer et al. 2002, de Kezer 2013). In Switzerland, research in history focuses on the dissolution of common property in the lowlands starting in the 16<sup>th</sup> century and ending in the 19<sup>th</sup> century (e.g. Inneichen 1996, Huggel 1979). In the alpine areas, however, common property institutions persisted until today. In the context of modern public administration, the robustness of the commons linked to civic corporations (*Bürgergemeinden*) and corporations (*Korporationen*) can only be explained by an in-depth historical analysis. Indeed, they have been subject of historical monographs studying the *longue durée*. The result was a rich, but extremely heterogeneous literature. Apart from a big number of older intrinsic depictions, there are also some recent critical-analytical studies (Buchmann 1996; Head-König 1997, 2003, 2013; Niederer 1991; Jörger 2000; Schläppi 2009, 2011a, 2011b; Stadler-Planzer/Stadler 2008; Stalder et al. 2015; Wunderli 2014). However, the two classical publications by Miaskowski are still indispensable today (Miaskowski 1878, 1879). Interestingly, he states that Switzerland with its diversity can be seen a laboratory for governance innovations in the management of common pool resources, including cultural and social factors and area related landscape ecosystems. The basis for this diversity is the fact that under the principle of subsidiarity and decentralization, these institutions are not subject to the constitution of federal state law, but to the constitutions of the relatively independent cantons (Stalder/Stuber 2015). Focussing on resources such as pasture use, we need to stress that there is no overview of the history of the alpine regions in Switzerland. A comparison of the many different institutions responsible for the use and governance of pastures and their relevant development since 1800 would therefore have to be collected from various historical, ethnographic and geographic/botanic studies as well as from statistical surveys. The complex property and utilization structures of pastures in the Alps and alpine foothills in Switzerland gave rise to an extremely varied terminology. This terminology reflects seasonal use and transhumance patterns and points to different agricultural systems, which link collective and private property in many ways. Property regulations include the so called summering Alps and highlight their relationship to collective property institutions and agricultural and hay producing activities in the midlevel areas (*Maiensäss, mayen, monti*) and agrarian fields in the valleys or lower level areas (see f.e. Netting 1981). Fundamental questions on alpine farming are discussed from a chronologically and geographically comparative historical perspective in Mathieu (Mathieu 1992, 1998, 2011, 2015; Montenero et al. 2009). Based on historical and trans-disciplinary research in the Ursern Valley, Schaffner developed a cultural-historical perspective on the alpine economy and its actors that also reflects on the history of research (Schaffner 2012a, 2012b). Several historical studies on institutions of collective users of pastures (e. g. Head-König 2004; Stadler et al. 2013; Tiefenbach 2013) as well as local histories (e. g. Redolfi 2007;

Disch 2012) deal with the development of local agriculture and its pastures. Furthermore, the nationwide statistics on the alpine regions of Switzerland from the 19<sup>th</sup> and 20<sup>th</sup> centuries provide extensive quantitative data including property rights, size, animal population, economic success, labour, infrastructure, environmental status (Stat. Bureau EDI 1868; Strüby 1914; Werthemann/Imboden 1982). Research of this period shows evidence of a strong decline of economic prosperity as well as adjustment to modern ways of cultivation (Bürgi et al. 2013). The textbooks on alpine agriculture and animal husbandry – although a reaction to the loss of economic significance of alpine agriculture and therefore of normative orientation (Anderegg 1898; Stebler 1903) – underline this decline but provide valuable knowledge on the alpine commons institutions for the management of pastures. Ethnographic monographs in history deal with individual regions (Weiss 1941; Hugger 1972), focussing on historical issues of CPR management, among others. Also cantonal compilations and individual studies on farmhouse research (Furrer 1989; Glauser 2012), which analyse, in particular, the economic buildings in the valleys and the variation in alpine buildings due to changing utilisation, provide useful information on pastoral commons. These also include several comparative studies from the 1940s and 1950s (see Födin 1941; Geiger/Weiss 1950). Interestingly this also includes geographic and botanical literature, which is of interest to the historical part of the project in so far as it describes pastures in the alpine regions as cultivated landscapes (Bätzing 2005) and analyses the connection between ecological changes and changed ways of utilisation (Brugger et al. 1984; Stöcklin et al. 2007). This thus enables us to conceptualize Swiss Commons especially in the Alps as integrated in a cultural landscape ecosystem that exists thanks to human use and governance as manifested in institutions and practices – from the past to the future.

Compared to the literature on pasture, literature on forestry is rather scanty: historical overviews exist only in the form of a short handbook (Della Casa 2015) or a historiographic overview (Bürgi et al. 2001). Some older Swiss overviews inform region-specifically on the state of forests in certain years (Landolt 1862; Flury 1914) or discuss certain periods of development (Grossmann 1949a, 1949b; Weisz 1949). Of particular interest for our investigations are studies focussing on the various kinds of forest institutions related to property rights (Miaskowski 1878; Huber 1948). The complexity of property consolidation during the long transition period from the Ancien Régime to modernity, is reflected on by several regional studies (Below/Breit 1998; Finger 1984; Trevisan 1990; Wullschleger 1978). Furthermore, there exist local studies on several forests of urban civic corporations (Baden, Bern, Biel, Büren, Burgdorf, Sion, St. Gallen), whereas quite a number of current studies were written concerning the rural civic corporations, profiting from awards by the Sophie and Karl Binding Foundation (Amden SG, Cormoret JU, Gams SG, Fully VS, Rothenfluh und Anwil BL, Romanshorn-Uttwil TG, Sumiswald BE). These civic corporations were praised for their sustainable management of communal forest areas, including economic, social and environmental variables (see Combe 2011). While literature on local uses of forests as a CPR in common property is scarce, there is ample literature on the way the state interferes in processes of the sustainable forest management to be extended all over Switzerland, which is commonly connected to the first Swiss Forestry Law of 1876 (“Bundesgesetz betreffend die eidgenössische Oberaufsicht über die Forstpolizei im Hochgebirge”). This national law was inspired by the then new idea of sustainability and by related discourses of not using more of the forest than can regrow. A deforestation paradigm – deforestation in the mountains was to blame for floods in the lowlands – was adhered to by Federal State Authority to protect the alpine forests (Bloetzer 1978; Pfister/Brändli 1999; Schuler 2008; Stuber 2008). In accordance with international forest-historical research (e.g. Hölzl 2010; Radkau 2007; Whited 2000), the once

predominant idea of continuous progress from “traditional forest exploitation” (traditioneller Plünderwald) to “professional sustainability forest” (professioneller Nachhaltigkeitswald), has been replaced by a multi-levelled conflict model. The focus of studies has shifted from normative and legislative sources, indicating the presence of state institutions, to research making use of sources from practical work such as forest management plans (Bürgi 1998, 2000) and oral history (Gimmi Bürgi 2007; Bürgi/Stuber 2013). Thus, the long-held, predominantly wood-centred view of forestry history is increasingly questioned and the multi-functional ways local societies use forests became more visible, particularly in the alpine regions (Stuber/Bürgi 2011). The existing literature from more theoretically as well as resource oriented fields of research is barely interconnected due to historiography, but a strong topical connection is obvious. Neither Swiss alpine agro-pastoral agriculture nor alpine forestry can be understood separately and without reference to common property institutions.

*Social anthropology and human geography*: This insight allows us to consider the current state of research in social anthropology and human geography as well as in political science and economics. These show very different but also interlinked theoretical approaches, to use Elinor Ostrom's expression, which we will outline by discipline. Starting with *social anthropology/human geography*, the Nobel Prize winning work “Governing the Commons” (1990) by Elinor Ostrom deserves an in-depth discussion. In this approach, which is part of what is labeled New Institutionalism (NI) (see Haller 2007, Haller ed 2010), she elaborates on her notion of design principles for locally established long enduring institutions (rules and regulations) for the management of CPRs such as pastures and forests.<sup>1</sup> Her work is mostly based on case studies from social anthropology and human geography, of which Robert Nettings (1976) work on the management of pastoral commons is a cornerstone. These examples show that common property institutions can reduce transaction costs for collective action that made sustainable use of the commons possible and contradict the view that common property will lead to overuse of CPRs as described in Hardin's “Tragedy of the Commons” Ostrom's work triggered the production of a large, well-known body of literature as well as the *International Association for the Study of the Commons* (IASC). In addition, a related digital library was created as well as a new scholarly publication, the *International Journal of the Commons*. Ostrom further extended her approach to an Institutional Analysis and Development (IAD) framework (Ostrom 2005) in order to explain institutional diversity. However, this approach has been criticized, particularly by social anthropologists for not addressing issues of different levels of interactions such as historical, external economic as well as political changes and power relations of actors. These are features that need to be incorporated in order to explain why institutions change and which actors with which power relations drive that change (see Haller 2013; Olivier de Sardan 2014; Cleaver 2001).

Drawing on this critique, another theoretical framework of the New Institutionalism approach in economic anthropology (Ensminger 1992; Haller 2010 ed.) incorporates issues of change and power. Here, institutional change is linked to external factors (i.e. the natural, political and economic environment, demographic and technological factors), which influence and can change prices (valuation of resources or areas related to others). In addition,

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<sup>1</sup> Common pool resources have the characteristic that they are subtractible (units used are not immediately available for other uses but have to regrow) and difficult to defend for a single individual (while groups are able to defend these; see Becker and Ostrom 1995, Ostrom 1990, Haller 2007). Common pool resources can be managed by different property systems. However, common property institutions are robust if they show the following design principles: 1) Clearly defined boundaries, 2) Proportional equivalence between costs and benefits; 3) Collective choice arrangements; 4) Monitoring, 5) Graduated sanctions, 6) Conflict resolution mechanisms, 7) Minimal recognition of rights to organise, 8) Nested enterprises (for resources that are part of larger systems) (Ostrom 1990; Haller 2007).

institutional change has an impact on internal factors, which in turn influence the actors using the commons. These internal factors include elements such as bargaining power and ideology, the latter of which consists of discourses and narratives used to justify the selection of specific institutions for the management of common pool resources, like for example favoring values of modern neo-liberal economics opting for private or state property vs. ecological services opting for more communal or participatory approaches. Such ideological processes as well as differences in the bargaining power of actors – which can be strengthened or weakened by ideologies – have an important impact on the way actors perceive, organize, select and craft institutions.

This power sensitive NI-approach also offers an analytical framework to explain institutional and organizational challenges, choices and practices and related coping and adaptation strategies dealing with these multiple challenges. Adaptation strategies need to cope with external changes such as highly reduced prices for agricultural products, increasing importance of tourism, new multiple ecological services as well as cantonal, national and international policies that affect them. This social anthropological contextualization leads back to Netting's seminal work on villagers adaptation strategies described as "Balancing on a Alp" (1982). He showed that we cannot carry out fragmented research if we want to understand actions in alpine environments. Neither can we just focus on the local level and on one institutional design alone. Going back centuries, he unpacks how common property pastures developed in the absence of medieval hegemonic power. He shows that common property is linked to private property meadows, which are again linked to the collective management of water for irrigation, demanding a communal labor force, embedded in family relationships and the church. This interlinking was made evident through participant observation and archival work Netting did in Törrbel in the 1970s. This work has not been taken up again in the same detailed form, based on a comparative approach carving out emic perceptions of historical and economic-political changes over the past 100 years. There are some anthropological studies showing how actors were reorganizing, coping and working either collectively or in private enterprises to manage alpine areas and resources and faced with important economic and political changes, but the field is far from being well researched. Studies by Baur, Liechti and Binder (2014) and Baur and Binder (2012) focus on the heterogeneous behavior of actors in alpine pastures. Research on the governance water channel irrigation systems in die Valais has produced evidence of a diversity of institutions and practices – from "traditional" cooperative to diversified hybrid models – still present nowadays (Schweizer et al. 2014). Another publication by Marianne Tiefenbach (2013) illustrates the organizational structures of alpine cooperatives related to sustainable management of landscapes in Grindelwald. In a recent comparative study Landolt and Haller (2015) have investigated the use of the common pastures in two alpine villages in the canton of Grison. In one village, conflict arises out of a neglect of cooperative work needed for maintaining common pastures. This failure of collective action occurs on the basis of farmer groups with lower bargaining power and with negative reputation (ideology) within the commune. In the other village farmers had enough bargaining power to challenge the interests of other users. Coupled with the capacity to self organize, be innovative and devise new institutions to cope with market and political changes, these farmers could assert themselves better than their colleagues in the first village (Landolt/Haller 2015). The major common issue in these studies is the way institutions could or could not endure massive economic and political changes and shocks – and therefore showed a high degree of resilience. On the one hand they had to adapt to new parameters of commodification and a neo-liberal order. On the other hand the decentralized Swiss political system allows local institutions to craft their models.

Agrarian economics: While social anthropological and human geography studies focus on issues of self organization, institutional adaptation and innovation while including an emic perception as well, agrarian economics looks at economic resilience as an indicator for sustainability of institutions and related forms of economic organization. However, newer economic literature following Powell (1990) does not focus on economic performance alone, i.e. only focusing on common property compared to private property institutions, but highlights the fact that cooperation as a form of organization in different systems plays a role in economic performance. Related economic literature focuses on the degree of interaction between these property systems in long term, robust cases. This is of central interest and needs to be related to forms of organization and success and failure in the market: Janssen and Ostrom (2006) mention „governments, communal groups, cooperatives, voluntary associations, and private individuals or firms” as possible organizational forms for governing common pool resources. Not all of these organizational forms are equally well suited to study the governance of CPR from an economic viewpoint, taking economic efficiency into account. In this context, the focus of research has shifted from hierarchical firms to acknowledge the fact that cooperatives have emerged as a setting emphasizing commonality and equality of their members. It is therefore useful to first concentrate on the literature about cooperatives when studying CPR use.

Together with law, theology and ethics, economics is one of the few normative branches of science. Its utilitarian focus on profits, private property and private economic organization and their added value has provoked the critique of being a “reductionist” science (Diaw 2005; Katzenstein 2009), but has also enabled the distinction between successful and failed strategies. Herein lies the potential for the incorporation of an economic part in the project. From the literature we can draw the following indicators and factors of success.

A) First, while neo-classical theory focuses on individually achieved *profit* as the most important indicator for the success of an enterprise, left-wing social scientists repeatedly emphasize the ‘distributional conflict’ (Capaldo 2007) or ‘conflictual relationship’ (Ortu 2008) between profits and wages. For most forest cooperatives, the ability to pay acceptable wages is an indicator of success, while for cooperative alpine summer pastures, the situation is more complex. Alpine cooperatives receive part of their turnover from sales of cheese and another part from farmers’ reimbursements, who send their cows to the pasture and are often members of the cooperative. Wages have to be paid to the alpine herder and cheese maker for care and production. Therefore the utility is different than for example for forestry. It is interesting to see that the older literature on success indicators of forest, fisheries and agricultural cooperatives, such as standard textbooks, usually refers to profit as the central indicator (Bergen et al. 2013), while an alpine pasture calculation has to be done in a different way, balancing more between care as a service and the production of milk and cheese (Theuvsen/Franz 2007; Henriksen et al. 2012). Secondly, other approaches define success differently, looking at emic perceptions of the members such as their satisfaction (Poggie et al. 1988; Amini/Ramezani 2008; Zarafshani et al. 2010; in line with social anthropological approaches). A third line of thought considers the longevity of cooperatives – which is in line with Ostrom’s notion of robustness – as the most important factor (Barton et al. 2011; Hertz 2011), while a fourth approach focuses on the sustainable use of CPRs (Dietz et al. 2003). Therefore, these four different approaches (monetary, including issues of differentiated care/production/share, psychological, historic and environmental), which look at success as related to profit of cooperatives, can be differentiated.

B) Another issue is the structure of organization, related to CPR and successful common property institutions. Scholars point out that an open membership policy and a unique profile in terms of their business model (Bhuyan/Leistriz 2001) are important factors for cooperatives. Clear service level agreements for the accountability of funds, an active management of members' expectations and pragmatism are additional factors identified by Emmanuel and Nhlana (2014). The empirical findings of extensive research on cooperation has been summarized by Ostrom (2014) by concluding that "some groups do and some groups do not succeed in overcoming social dilemmas to achieve collective action". This general statement, however, has been underlined by a number of more concrete success factors which have been put together by Morrow and Watts Hull (1996), stressing that individuals need to set up institutions and that individuals as co-owners of CPRs should be able to change these rules (which is in line with the design principles of Ostrom).

Political science: These institutional decisions, arrangements and organizations do not take place in a political and administrative vacuum, however, which brings in political science and public policy analysis as a last discipline of this project. First of all, a debate dealing with institutions for the governance of CPR is still absent from much of the literature, as an overview of 15 major textbooks in the discipline shows where only one mentions this topic (Sabatier 1999). Analyses of environmental policies have demonstrated that ecological conditions of natural resources depend on specific environmental protection policies. Moreover, they also depend on the effect of an increasing number of non-environmental policies intended to regulate other activities such as agriculture, energy or transport. But bottom-up, self-organized forms of resource management are not on the scientific radar – a general lack of interest in property rights can be determined as well. This is quite curious since (private) ownership as well as other types of disposal and use rights (coming from private law) deeply affect the way resource users are appropriating the specific resource. Paralleled, public policies (public law) often directly affect property and use rights by legally protecting certain kinds of interests at the cost of others (e.g. by promoting the protection of a good supplied by a resource rather than its direct use). Since changes in regulation often alter the use rights enjoyed by policy actors, they develop political strategies to influence the formulation or the implementation of public policies. Secondly, while the commons literature makes an important contribution to the analysis of resource management by drawing attention to the function of property rights, it ignores the political and policy level background enabling these policies. In (Western) liberal democracies, regulation of property rights regimes is based on the rule of law (Kirchgässner 2000) and there are at least three important variables associated with the legal and political systems without which common property institutions today could not exist (Gerber et al. 2009). a) The ownership and use rights need to be analysed in the context of the overall state level legal protection. b) Many of the institutional economical analyses are based on the assumption of a homogeneous demand for local goods and services which political science can show is not the case. c) Self-organized behaviour is facilitated by the structuring role played by the state and the rule of law, the so-called shadow of the state (see Scharpf 1994) – and it may even be provoked by the same shadow. The third and last point I want to make is that CPRs are defined as having difficulties excluding users, which is a case in point for political scientists. Bromley (1992) and McKean (2001) describe common property as "private property for the group" or as shared property. This observation calls for a closer analysis of the legal mechanisms by which the state backs up decisions taken by shareholders and in this way brings in state institutions.

In conclusion, the state of the art of social scientific research shows that all four disciplines contribute nicely to the overall question of how long enduring common property institutions for the management of pastures and forests have been operating and will be operating in the future considering historical evidence, emic perceptions, economic calculations and policy context.

## **2.2 Status of own research**

Many of the contacts between the applicants as well as their joint focus on interdisciplinary insights have their roots in the ALPFUTUR network, a research program dedicated to exploring open questions on alpine land management (Lauber et al. 2008) as well as from the NCCR North-South and interdisciplinary collaborations within and between social and natural science faculty (Geography, CDE) at the University of Bern.

History: *Christian Rohr* is full professor of environmental and climate history at the University of Bern and director of the section of economic, social and environmental history at the Institute of History. In his research, he mainly focuses on the risk of natural hazards for alpine societies and their local and regional adaptation strategies (Rohr 2007 and others). In recent years, he has supervised several MA theses on topics related to Swiss commons (Antener 2012; Baumgartner 2013; Bracher 2014; Burri 2015; Liechti 2014; Moser 2012; Woern 2013).

In his dissertation thesis *Martin Stuber* analysed the changing concepts of sustainable forest use in the 18<sup>th</sup> and 19<sup>th</sup> centuries (Stuber 2008). In cooperation with an environmental scientist he produced an overview of the various traditional forest uses in Switzerland over the past 200 years (Stuber/Bürgi 2011). In the context of an SNF project on the Ökonomische Gesellschaft (Economic Society) he asked about the influence of enlightened reformers on the allocation of the commons (Wyss/Stuber 2012). In the context of a project on the history of the civic corporation of Bern (Bürgergemeinde), he analysed the long-term transformation of bourgeois property (Stuber 2015; Stuber in print) and placed the example of Bern in the context of Swiss civic corporations (Stalder/Stuber 2015).

The postdoc candidate *Rahel Wunderli* may refer to long years of research activity in the Canton of Uri. She analysed the development of agriculture and alpine agriculture in the Ursern Valley in the 20<sup>th</sup> century (Wunderli 2005, 2014). Focussing on several aspects of agricultural (structural) change as well as on the strategies and ways of perception of several actors, such as farmers, the Swiss Confederation and the Canton of Uri, Wunderli also looked at the local “Korporation Ursern” as an alp owner. Furthermore, she has been dealing with natural-ecological aspects of alpine agriculture (Wunderli 2010). Among others, she was one of the cooperation partners of the VALUrsern interdisciplinary SNF project.

Anthropology/Human Geography: *Tobias Haller* is extraordinary professor in social anthropology (economic and ecological anthropology), closely collaborating with the Centre for Development and Environment (CDE) at the University of Bern. His research is mainly on common pool resource management and institutional developments focussing on New Institutional and political ecology approaches. He has been working on pasture, forestry and water management in African floodplains (Haller 2010, Haller 2013, Haller et al 2013) and protected areas (Galvin /Haller 2008). He was visiting scholar at Indiana University with Elinor Ostrom in 2003. He has also supervised PhD and MA research in Switzerland on the issue of the commons (PhD project of Gabriela Landolt on conflicts over pastures in Laax and Sumvit, different studies on nature parks in Switzerland). Her research compared two case study areas of pastures in common property management and institutional changes in two villages. In this study, the neo-



institutional framework is used from a historical anthropological perspective using oral history and participant observation. It shows why and how in one village a new form of organization with new nested forms of institutions could be established (based on high bargaining power of the peasant groups on the commune) while in the other alpine pasture management is failing because collective action and new forms of organization and management cannot be developed and conflicts prevail also due to low bargaining power and low level of collective action. The postdoc candidate Karina Liechti is currently working for CDE and has long standing research experience in the canton of Bern (Baur et al. 2014) and Valais (Schweizer et al. 2014).

Economy: Jochen Kandelhardt is professor and head of the Institute of Agricultural and Forestry at the University of Vienna, specialized in sustainable agricultural economics. He will be collaborating with Dr. Stephan Mann from Agroscope that collaborates with the Alpfutur research program. Agroscope has already put a focus on human interactions and institutions, albeit in the context of employees on alpine summer farms. empirical studies (Calabrese 2011) and theoretical explorations have been undertaken on the interplay between cooperation and well-being (Mann 2008, 2011). It has been suggested that there are a number of reasons why a development from cooperative forms of labor towards more market oriented forms may diminish participants' well-being considerably. Even efficiency, a value known from the sphere of markets and hierarchies, can be detrimental for happiness in society (Mann 2010).

Policy analysis: Co-applicant *Stéphane Nahrath* is full professor at the Swiss Graduate School of Public Administration (IDHEAP) of the University of Lausanne, where he teaches public policy analysis. His research and publications relate to the comparative analysis of public policies, to urban politics and governance, as well as to the analysis of various kinds of institutional (natural and artificial) resource regimes (soil, water, air, landscape, forest, fauna and biodiversity and networks infrastructures). He has published several articles focusing on the impact of public policies on CPR institutions (Bréthaut/Nahrath 2011; Gerber et al. 2008, 2011; Nahrath et al. 2012). Co-applicant *Jean-David Gerber* is assistant professor (tenure track) at the Institute of Geography of the University of Bern. He holds a postgraduate degree in Urban Development, Resources Management and Governance (2004) from the University of Lausanne and a PhD in Public Administration (2005) from the Swiss Graduate School of Public Administration (IDHEAP). His research focuses on the regulation of natural and human-made resources using approaches drawn from public policy analysis and institutional economics (e.g. Gerber et al. 2009; Knoepfel et al. 2012). His PhD thesis focussed on the management of the landscape resource understood as a CPR (Gerber 2006; Gerber et al. 2007; Gerber/Knoepfel 2008). Subsequently he worked in a research project analysing the strategy of large landowners in Switzerland. Many of them act as CPRI (Gerber et al. 2008; Gerber et al. 2011; Nahrath et al. 2012). Post-Doc candidate will be Dr. Rémi Schweizer who has worked on irrigation and environmental policies in Switzerland.

### **2.3 Detailed Research Plan**

This project proposal combines the disciplines of history, social anthropology, agrarian and forestry economics and public policy studies in order to arrive at a holistic view of the functioning of common property institutions, their diversity and their development over the last 300 years. The main research question arising out of up-to-date scientific investigations, is how commons institutions were adapted to environmental, political and economic change over time and are different users' adaptive strategies similar in spite of the great variety of CPR institutions such as

pastures and forests. Another important question is why did these CPRs endure despite major economic, political and social changes. Further questions related to the overall topic are:

- Which major factors influenced the *longue durée* of history over the last 300 years that allowed for local crafting and adaption of institutions (history)
- How are these institutional changes in the near past as well as the strategies applied to mitigate livelihood problems perceived from a local perspective and how are decisions taken? Considering the variability of institutional options, Switzerland can be seen as a national laboratory for bottom-up institution building (social anthropology/Human Geography)
- What economic calculations do actors employ and what other factors need to be considered in the relation between commons users and the market? (Agro-Economics)
- How are local institutional solutions integrated in state rules and what is the role of actors from the public policy level in developing and re-crafting these solutions (political sciences)

We will focus on these CPRs but will, if empirical evidence suggests it, broaden the scope for other CPRs such as pastures and forests. Since the late 19<sup>th</sup> century, the management of these CPRs takes place in conjunction with Swiss public policies regulating national resource governance and land use planning on communal, cantonal and national level. Related to Ostrom's design principles that characterize robust institutions for managing common-pool resources, this latter objective can be referred to as "principle eight", which she called "nested enterprises", meaning an embedment of institutions in larger systems.

Related to the current diversity of embedded institutions, we first want to describe the different dimensions of this diversity and subsequently answer the question on how the large diversity of institutions evolved. Secondly, we ask how these systems remain robust and how they adapt, endure or are newly crafted under the pressure of economic and political changes. Thirdly, we are interested in discussing the important feature in the Swiss legal system of resource property and use that is marked by the principle of decentralization and rule of law. Such a legal constellation provides secure and trustful options for local institution building (constitutionality) that gives local actors a sense of ownership in the institution building process (Haller et al. 2015). While there are, of course, always operational problems stemming from this legal and institutionally decentralized system, the Swiss constitution based on the principle of subsidiarity gives ample room for bottom-up institution building on village, communal and cantonal level. The whole team is focusing on three organizational forms of common property institutions:

- Civic Corporations as local autochthonous groups in villages and cities (German: Bürgergemeinde / Ortsbürgergemeinde / Bürgergemeinde; French: bourgeoisie; Italian: patriziato)
- Sections within communes (German: Bergschaft, Geteilschaft, Teilsame; French: consortage; Italian: vicinato)
- Broader associations / cooperatives / corporations covering larger regional entities (German: e.g. Alpkorporation, Waldkorporation usw.; French: e.g. communauté d'alpage, corporation forestière, Italian: e.g. cooperativa di alpeggio, corporazione forestale)

In this study we aim to uncover the historic, local and contemporary emic, socio-economic and relevant state policy conditions under which common property institutions for the management of CPRs remain stable or are adapted to

new conditions. Nevertheless they can show signs of resilience and can thus be labeled to be sustainable regarding the use and maintenance of cultural (human made) landscape ecosystems. We therefore propose a collaboration of historic, social-anthropological/human-geographical, socio-economic and public policy research in order to understand different SCALES of the commons in Switzerland:

The historical focus will compare six case studies (see below), which were identified as interesting due to the data covered, while still allowing research on the emergence and change of commons institutions in Switzerland. Researchers from history will use classic hermeneutic primary literature research and analysis (hermeneutic work on basic data, synthesis of literature combined with oral history and statistical analysis). The social-anthropological /human-geographical part will look at these cases by carrying out in-depth studies to uncover perceptions, meanings, identities and operations as well as adaptation of commons institutions using qualitative methodology (see below under methods). The project envisions a three to four month period for qualitative exploratory research before sharing results with economists on local economic views and with public policy researcher on nested governance issues (local and cantonal as well as state specific interactions and views). In addition, as the main applicant and Prof. Kandelhardt have experience in ecological studies, we will assess emic as well as empirical evidence regarding sustainability for cultural landscapes, the economic and the social aspects of resilience. These findings will be backed by the work of a human geographer, who has experience with sustainability studies at the Centre for Development and Environment (CDE) at the University of Bern. These qualitative and more exploratory findings will enrich the agro-economic focus and will uncover socio-economic variables on a much larger scale, benefitting from historical and social-anthropological insights while asking about normative indicators for these commons systems. Budget questionnaires, economic data of infrastructure, focus group discussions and basic questionnaires will follow in the second year of research. Similarly, the public policy part will equally profit from the first findings in order to enlarge its policy focus. This will take research to a higher institutional and political level and deal with the embedding of local institutions into the national and cantonal systems, which provide legal and policy frameworks for local institutional adaptation.

Methods: An important part of the interdisciplinarity of the project is a mixed methods approach combining qualitative and quantitative methods, a variety of different sources and data (written sources and interviews) as well as participant observation, open and semi-structure-oriented focus group talks and biographies/oral histories as well as questionnaires (quantitative). We will start with exploratory qualitative methods, which will be combined with quantitative methodologies that are then extended to a larger set of studies for economics and political science.

All the researchers will use the same case studies for this project and will share their data at regular workshops. While the historical and social anthropological part will concentrate on these examples, the agro-economic and public policy research will cover additional cases founded on the core in-depth studies in order to be able to generalize findings.

The following organizations are involved under the leadership of Prof. Dr. Tobias Haller:

Institute of Social Anthropology and CDE University of Bern; Institute of History, University of Bern (Prof. Dr.

Christian Rohr); Agroscope (Lead: Dr. Stefan Mann) and Institute of Agricultural and Forestry Economics, University

Vienna (Prof. Dr. Jochen Kandelhardt); Institute des hautes études en administration publique (IDHEAP), University of Lausanne (Lead: Prof. Stéphane Narath) and Institute of Geography, University of Bern (Prof. J\_P. Gerber)

The following section describes the disciplinary orientation of the research in order to then show common hypotheses to be investigated in the interdisciplinary project.

#### Case studies and history research projects (Post Docs Martin Stuber/Rahel Wunderlin/Prof. Christian Rohr, Uni Bern)

At the heart of the project are six case studies (see table in the appendix), which all four disciplines will contribute to , although in different depth. Selection of case studies was carried out according to the following criteria:

- First, focusing on the two core resources pasture and forest, a case study must be substantial both historically and for the present time, since three out of the four represented disciplines are concerned with the present and the most recent past. From this fact resulted a restriction to the Alps and the alpine foothills on the one hand, because appropriate CPR institutions could be identified only there. On the other hand, based on the same argument, the perspective was extended from individual institutions to whole clusters of local institutions.
- Secondly, case studies resulting from long-term research projects in Grindelwald (Baur et al. 2014; Mägeli-Örtle 1986; Tiefenbach 2013) or on the Corporation of Ursern (Schaffner 2007, 2012a, 2012b) are out of the question because of oversaturation of research in those areas.
- Thirdly, the great geographic, cultural and legal variety, as is typical of Swiss CPIs, should be depicted. Geographically, we selected case studies situated in the Alps and in the alpine foothills. We selected study sites in three linguistic regions when it came to culture, and in six cantons when it came to legal aspects. Consequently, apart from the classical civic corporations (Bürgergemeinde Chur, bourgeoisies in Val d'Anniviers and patriziati in Olivone, Campo e Largario), now also one corporation as a federation of 17 civic corporations (Uri), a section within communes (Sarnen) and corporations under private law (Appenzell IR) are represented.

There are sufficient sources for all six case studies to make useful in-depth analyses. Furthermore, for all the selected CPIs it is possible to fall back on existing scholarly literature, allowing for basic orientation and contextualization.

*Table 1: selected case studies for interdisciplinary research*

<i>Place</i>	<i>Canton</i>	<i>Language</i>	<i>Organization</i>
Appenzell	IR	German	private corporations (Alpenossenschaften, Flurgenossenschaften, Waldkorporationen)
Chur	GR	German	civic corporation (Bürgergemeinde)
Olivone, Campo e Largario	TI	Italian	civic corporations (patriziati)
Sarnen	OW	German	section within communes (4 Teilsamen)
Uri (Korporation)	UR	German	civic corporation(s) (Korporation, 17 Korporationsgemeinden)
Val d'anniviers	VS	French	civic corporations (6 bourgeoisies)

Two main work steps are envisioned for the sub-project in history: In a first part, an overview of the development of the collective use of pastures and forests in the Swiss Alps and alpine foothills after the year 1700 will be produced. In addition, common property institutions and the actors using them will be compiled on the basis of the existing literature. The second part will then provide a more in-depth analysis of the six case studies based on a literature review and the study of clearly defined sources. The historical analyses focuses on how common property institutions are utilized (i.e. practice of utilisation) and integrates the insights gained into the formulation of environmental, cultural, social, political-economic and knowledge-historical questions. With practice of utilisation we mean the use of pastures and forests as well as of their spatial components in addition to the administration of resource utilisation, which consists of the working out and enforcement of rules. Questions concerning the inclusion and exclusion of certain groups of the population, of mechanisms of conflict control and of discursive formations will also be analysed by their historical dimensions.

Both parts will analyse the long-term utilisation of the collective resources of forest and pasture in the context of changing “energy ages” (Pfister/Egli 1998): The “agrarian society” was mainly based on solar energy (until 1860), the “industrial society” was based on coal imports after the country had been connected to the railway network (1850-1950), and the “consumption society”, characterised by mass consumption and mass motorisation, was based on the global availability of mineral oil (after 1950). How was collective agriculture affected by the changing economic significance of the analysed resources in the course of these three ages? How did the common property institutions react to these changes? Which logic for the different ways of utilisation can be identified in this context? How and to what extent do practices of pasture use differ from those of forest use? Where could the observed practices be located in the context of today’s concept of sustainability with its ecologic, economic and social dimensions?

To conclude, we will also ask in which ways institutions and resource management were affected by the political dynamics during the period under analysis – from the Ancien Régime to the period of transition to the constitutional and federal state which started with the Helvetic period. How did pre-modern institutions succeed in adjusting to the modern constitutional state? How did they adjust their collective use of resources to the changed political environment, or how – vice versa – did they influence it? And how are the political changes related to those of the energy system? The chronological starting-point for the sub-project in history will be about the year 1700. This is due to three reasons: First, for this period we can rely on sufficient sources; secondly, the transformations of the institutions discussed here can only be understood if their previous roots in the Ancien Régime have been worked out; and third, the period under analysis is complementary to the SNF project *Common Property, Collective Resources and the Political Culture of Ancient Switzerland* by Daniel Schläppi.

#### Anthropology/Human Geography (Post Doc Rahel Wunderli/Prof. Tobias Haller, MA students)

This part of the project will focus on the emic perceptions of changes in alpine resource governance in Switzerland, focusing on bottom-up practices regarding organizational and institutional structures as related to economic, political, and ecological challenges. It aims to compare different forms of organization and institutions, their emergence and history as well as the impact they have on the identity of local people in the cultural landscapes under study. This includes: a) the carving out of perceived challenges resource users are facing in managing alpine commons based on paying attention to fragmentations in the communities, power relations and institutional

embedding on several scales (from federal, cantonal, communal and local level). b) a focus on factors, which lead to sustainable self-organization. Moreover, a focus on the construction of identity related to common property institutions and resources, their interdependence in crafting and adaptation also in the context of the emic view on economic utility, c) a focus on elements of constitutionality, the bottom-up process of developing a sense of ownership of institution crafting which is studied in several areas of the world and for which the Swiss models could be illustrative (see Haller et al. 2015).

#### Agrarian Economics (PhD N.N. /Prof Jochen Kandelhardt, Uni Vienna and Dr. Stephan Mann (Agroscope)

The economic part of the project will focus on two major objectives: The first one aims to actively involve participants in the definition of their objectives so that the concept of utility in the management of common pool resources can be understood in a more holistic way (see the link to the social anthropology/human geography part). This objective can be split into two different sub-questions: a) to which degree do the participating members of an area of CPR held in common property prioritize economic factors if compared to the social needs of an organization? Which role do altruistic factors play, such as the preservation of natural resources? b) within the realm of economic factors, which units are primarily considered as reference values? This part of the project is dedicated to the identification of unexpected variables, which cooperating members use to identify the success of their organization. To identify such variables, the transcribed interviews will be coded giving special emphasis to references of success and added value. Insights gained in this first step will be used to design a survey for which all registered forest and alpine summer cooperatives in Switzerland will receive questionnaires. Respondents will be asked to state their organization's accountancy data as far as it can be made accessible. In the supplementary questionnaires, respondents will be asked to rank the objectives and to provide some key information about their cooperative, including historic, institutional and financial characteristics. Both descriptive analysis (which will show the most important objectives of cooperatives) and multivariate methods (which will explain the differences in objectives by different characteristics of the cooperatives) will provide useful normative scales for analyzing the data obtained.

#### Policy analysis (Post Doc Remi Schweizer, Profs Stephane Narath (Uni Lausanne) and Jean-David Gerber (Bern)

The policy analysis part is based on the *two following working hypotheses*:

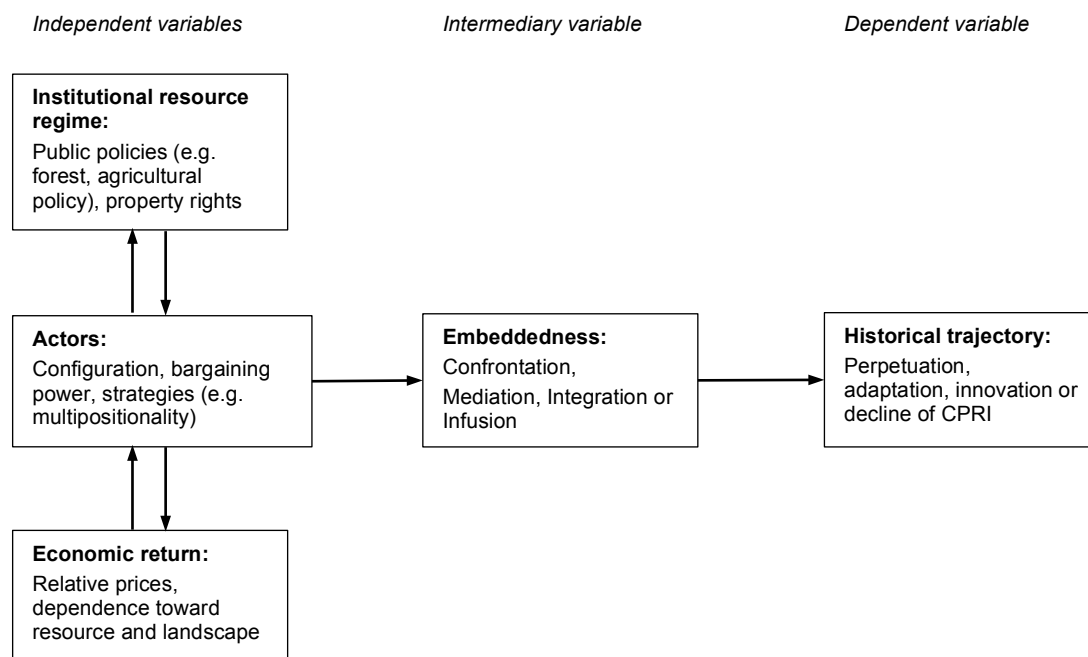
1. The historical trajectory of a common pool resource institution (CPRI; (dependent variable) depends strongly on its institutional and political relationship with state organizations and more particularly on the type of integration - or "embeddedness" - within policy arrangements (intermediate variables).
2. The type of embeddedness depends on (a) the institutional regulatory context (public policies and property rights), (b) the economic return of the main goods and services and (c) the composition of involved actors and power distribution (independent variables).

Figure 1 shows the interrelations of the dependent, the intermediate and the independent variables: We are thus looking at the way the state and the local institutional setting are configured, how local and administrative actors behave in relation to bargaining power and ideology (legitimacy) as well as to perception of the local actors as well as state actors. We are also studying the economic return in material and ideological ways. We can then see how this influences the intermediate variable and the type of integration/confrontation, which in turn influences robustness, adaptation/innovation or decline of CPR.

Common Hypotheses The projects formulates the following common hypotheses for all four disciplines: Perpetuation, innovation and/or adaptation, which keep the CPR institutions functioning will be reached if public policies (by state and canton) help guarantee a locally chosen mix of common and private property rights. At the same time they need to recognize the high bargaining power of local actors – giving CPRs, as part of a cultural landscape ecosystem, high historic and emic value – while relative prices for products from pastures (milk, beef) and forestry as well as multifunctional ecological landscape services should reduce negative incentives for continuing to keep the commons (or be mediated by local values and state support).

- A) Signs of decline become visible if one of the following challenges cannot be mitigated or changed: a) public policies create too many constraints (fragmentation) and a negative ideological labelling (e. g. discourse of CPRI is hindrance to regional or state development) for local collective action b) heterogeneity of local interests and low bargaining power reduce local collective action and positive collective identity and c) relative prices (also locally perceived) for related pasture products/forestry products are low and not mitigated.
- B) Intermediary variables showing the interaction between the CPRI and different levels of actors, state and economy plays a decisive role in this process: a) long confrontation will lead to scenario B while mediation and integration will increase the likelihood of scenario A. Infusion will show mixed results and depends on the bargaining power of state or local actors.

*Figure 1: Relation between independent, intermediary and dependent variables*



## 2.4 Time plan and milestones

After processing historic and social anthropological/human geography qualitative data, the economic as well as the public policy part will conceptualize its research tools and establish additional research questions. After this data is available, it will flow into workshops and focus group talks during the last part of the study. Like this it will enable

results to be reflected on in the other two major disciplines: historians will have a look at conceptual elements and how these were dealt with in the past (state – local relationship) and social anthropology will discuss structural and governance findings as well as economic findings on the local level via focus group discussions. These will then enable a workshop towards the end of the project with the aim to consolidate the research.

Table 2: Time Plan

Time	Anthropology /Human Geography	History	Economics	Policy analysis
Months 1-6	First contacts to case study organisations	Working out contextual knowledge	Working out contextual knowledge	Working out contextual knowledge
Month 7 Milestone 1	<i>Internal workshop on the current and historical political and economic structures of the collective use of resources in Switzerland (all disciplines) for elaboration of a common pattern for research plan/exchange/coordination</i>			
Months 8-15	Fieldwork in case studies	Fieldwork in case studies	Fieldwork in case studies	Fieldwork in case studies
Month 16 Milestone 2	<i>Internal workshop on first findings (independent variables from qualitative data) Common paper drafts for peer reviewed journals, individual paper (first findings), panels at conferences</i>			
Months 17-23	Fieldwork in case studies	Fieldwork in case studies	Fieldwork in case studies	Fieldwork in case studies
Months 24-28	Unifying analysis	Unifying analysis	Unifying analysis	Unifying analysis
Month 29 Milestone 3	<i>Internal workshop further research (independent and intermediary variables from mixed methods) Planning of special issue in International Journal of the Commons/Human Ecology/Society and NR</i>			
Month 30 Milestone 3	<i>Scientific congress on the research results at University in Bern/common panels for internat. conferences Conference panels on the results of the research together with representatives of the organisations</i>			
Months 31-36 Milestone 4	Finalizing PostDocs/MAs Common Book	Finalizing PostDocs Common Book	Finalizing PostDocs Common Book	Finalizing PostDocs /PhD Common Book

### 3 Relevance and interdisciplinarity

The idea of researching common property institutions in an interdisciplinary project results from the insight that a multi-dimensional view is indispensable for understanding the current functioning of these institutions as users of common pool resources (see Section 2.3). The international research community is very interested in such a project since Netting's work gained fame because of its relevance to the work of Elinor Ostrom. An interdisciplinary and comparative study would be highly welcomed. This is also the case because Switzerland has a peculiar public policy situation with direct democracy and well working decentralised structures as well as a high autonomy on the communal level. That makes Switzerland a unique laboratory for bottom-up institution building.

Over the course of the project presented here, representatives from the disciplines of political science, economics and social anthropology/human geography will analyse dependencies and cross-overs of the positions and action strategies of these institutions given the current political structures, the economic successes and failures of their utilisation regimes and governance practices as well as their perspectives on current political, economic and ecologic challenges. Moreover, the historical view included in the project is indispensable for understanding common property institutions and the persistence or transformation of these institutions in the context of changing political and economic structures. This is the case not only for Switzerland, but is of high interest internationally as well. The



combination of disciplines that share an interest in commons institutions and general trends is highly wanted (see section 2.3 case studies).

At the operative level, the interdisciplinary nature of the project presented here is guaranteed first of all by general agreement on a set of six case studies and two resources (pasture and forest) to be analysed by the participating disciplines. This focus will be crucial for the overall project. To support the inter-disciplinary dialogue, the case studies will be researched by way of a jointly worked out pattern of questions. This pattern will include both overlaps and different perspectives of the involved disciplines. It is meant to sharpen the conceptual and methodological tools, and it is a precondition for coordinated field research. In the course of this field research, internal workshops are planned to take place at regular intervals to allow for exchange both between the research groups and the project members as well as the inter-disciplinary advisory board. To prevent the inter-disciplinary aspect of the project from becoming a mere adding up of research results, the research schedule includes the working out of a common analytical concept at the last stage. A congress together with representatives of the institutions under analysis will provide the trans-disciplinary aspect of the project (see section 2.4).

For centuries, cooperative behaviour was considered constitutional for human interaction to the point that it was not deemed necessary to question these behavioural patterns scientifically. As markets have become increasingly powerful over the last decades in terms of structuring and shaping human behaviour (Sandel 2012), this has probably changed. However, there is no scientific paradigm available to analyse cooperative patterns in human interaction: Anthropologists offer powerful tools to observe human behaviour in general, but miss those tools necessary for the analysis of macro-structures which constitute the frame for cooperative action. Political scientists suffer from the opposite problem and do not provide tools to explain and predict human interactions on the micro level. Economics is an excellent discipline to describe linkages between the micro and the macro level, but their toolkit is almost exclusively tailored for understanding markets rather than cooperation. Among all the disciplines, historians are probably best suited to explore cooperative behaviour in the past than under contemporary conditions. In order to enable a sound analysis on cooperative behaviour, it is therefore indispensable to link the different disciplinary perspectives.

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