

International Journal of the Commons

Vol. 10, no 1 2016, pp. 363–386

Publisher: Uopen Journals

URL:<http://www.thecommonsjournal.org>

DOI: 10.18352/ijc.608

Copyright: content is licensed under a Creative Commons Attribution 3.0 License

ISSN: 1875-0281

Common property organisations as actors in rural development: a case study of a mountain area in Italy

Ivana Bassi

Department of AgriFood, Environment and Animal Sciences (DI4A), Agrifood and Rural Economics Section, University of Udine, Italy

ivana.bassi@uniud.it

Nadia Carestiato

Department of Human Science, University of Udine, Italy

nadia.carestiato@uniud.it

Abstract: The Consorzi Vicinali are common property organisations (CPOs) located in a mountain area of Friuli Venezia Giulia region, in North East Italy. These CPOs have a long history of mutual assistance and collective use and management of local resources, thus contributing to a balanced development of the local community and territory. This research is aimed at investigating whether these historical CPOs still have a relevant role to play in the development of local rural areas, and how they deal with the present needs and opportunities of these areas. Specifically, the robustness and viability of these organisations were analysed. The survey revealed some strengths and weaknesses of the Consorzi Vicinali. According to Ostrom's design principles, the robustness is quite high. Nevertheless, this ability to maintain some desired characteristics despite internal and external fluctuations does not always match with a high viability, in terms of natural resource management, internal participation, creation of job opportunities especially for young people, and capacity to attract financial support. In fact, some Consorzi still act effectively in terms of the collective stewardship of rural resources. Whereas, others have the potential to adapt to new challenges and emerging needs, due to the deep rootedness and the sense of belonging of the local community to its territory. These are the strengths of all the Consorzi. The robustness and viability analyses used in a complementary way have been effective here in giving a more comprehensive description of CPOs and their (potential) role in rural development.

Keywords: Common property organisations, common-pool resources, design principles, robustness, rural development, viability

Acknowledgement: We would like to thank Filippo Sabetti and Graham Epstein for their very constructive comments on an earlier draft of our manuscript. Many thanks also to the anonymous referees for their critical comments on the themes addressed here, which have helped us to improve our article.

1. Introduction

The Mountain Community of Gemonese, Canal del Ferro and Val Canale, a rural development agency in the Friuli Venezia Giulia region, carried out a project aimed at promoting local socioeconomic development. The project activities included the study of local common property organisations (CPOs), namely the *Consorti Vicinali* of Val Canale, and the analysis of development pathways involving these CPOs. The authors of this article were involved in the project carrying out research aimed at investigating whether these CPOs still have a relevant role to play in the development of local rural areas, and how they deal with the present needs and opportunities of these areas. The results of the research are presented here in order to contribute towards debates on the role of CPOs, and of collective action in general, in rural development.

The institution of common property is part of the wide and complex theme of commons. According to Ostrom (1990), it refers to a set of rights assigned to govern the use of common-pool resources (CPRs),¹ which are owned and utilised by groups of users, such as user associations and community institutions (Bravo and De Moor 2008). Common property is *another way to own* compared to alternative well-known forms, namely private and public property. Common property rights may be assigned to various assets (pastures, forests, fish, irrigation systems etc.) that groups throughout the world have used and continue to use collectively on the basis of shared rules. These groups self-organise themselves to create formal or informal CPOs to govern the use and management of CPRs (Ostrom 1990; Agrawal 2001).

Europe has a long tradition in common property. The spread of commons and other forms of collective action was more rapid in Europe than elsewhere (De Moor 2008). Even if in the last centuries common property has faced a number of challenges, many natural or man-made resources are still managed in common and are still essential for the welfare of humans and all other living beings. They still maintain some of their traditional significance and new important uses have been found for them, such as the provision of environmental and leisure services (Bravo and De Moor 2008). According to De Moor (2008), commons

¹ Common property refers to a set of property rights assigned to some goods; a common-pool resource is a type of goods (e.g. fish). The difference is minor in many cases, but it is possible to assign private property rights to common-pool resources (e.g. fish quotas).

“were adequate answers to the economic and social needs of contemporary north-western European society in response to a quickly but far from fully developed market economy and social networks becoming inadequate as family networks weakened”. Even if fluctuations and changes have occurred over the centuries, many regions in Europe are currently witnessing a revival of bottom-up collective action by citizens who prefer the self-governance of their resources. This revival indicates that “collective governance of resources by the stakeholders themselves is not just a remnant of a distant past” (Laborda Pemán and De Moor 2013).

Common property is an efficient model of resource management that can contribute to avoid the *tragedy of the commons* (Berkes et al. 1989; Ostrom 1990) and to sustainable development (Berkes 1989; McKean 1992; Agrawal 2001). The ability of local communities to self-organise and self-develop rules for the use of local resources is a key component in the sustainable local development paradigm (Galtung 1980; Raffestin 1981; Sachs 1984; Hettne 1990; Magnaghi 2010; Leigh and Blakely 2013). In fact, empirical studies recognise the importance of collective decision-making, setting rules, implementing decisions and monitoring adherence to rules in many aspects of natural resource management, agriculture and rural development programmes (Ostrom 1994; OECD 1998; Murdoch 2000; Meinzen-Dick et al. 2004). Studies also suggest that the likelihood of collective action tends to increase with higher levels of social capital, defined by Ostrom (1999) as shared knowledge, understanding, norms, rules, and expectations about patterns of interactions that groups of individuals bring to a recurrent activity. This requires trust, reciprocity, solidarity, information sharing etc. that create a capital on a par with natural, physical, financial, human and political capital, and is a potential instrument for building these other forms of capital (Putnam et al. 1993; Ostrom 1999; Lee et al. 2005; Clark 2010; Shaw et al. 2011; Neumeier 2012).

The theory and practice of regional policy has increasingly recognised the importance of mobilising and reinforcing all these forms of local capital, which include endogenous, tangible and intangible resources of a specific territory (Magnaghi 2010), to meet the needs of heterogeneous regions and to enhance their viability. The rural development policy of the European Union (EU) recognises the key role of rural viability in contributing to living countryside and to the attractiveness of rural areas.² In fact, nowadays it increasingly focuses not only on the competitiveness of agriculture and other economic sectors (income and employment creation), but also on the improvement of the other pieces of the rural mosaic, such as physical infrastructure, knowledge, environment, and landscape. The increased consciousness of the diversity of rural areas, in terms of needs and opportunities, puts emphasis on a place-based approach to rural development and

² See, among others: The CAP towards 2020: Meeting the food, natural resources and territorial challenges of the future, COM(2010)672; Regulation (EU) No 1305/2013 on support for rural development; EU Rural Review. A publication from the European Network for Rural Development. No 11/2012, 14/2012, 16/2013.

on the importance of actively involving local stakeholders in the development process of their own territory (OECD 2001, 2006). Hence, locality, namely local resources, local relations, local initiatives and so on, is a key component of this process, and local actors are not only beneficiaries of rural development, but even before this they are its actual planners and implementers (van der Ploeg and Roep 2003; McAreavey 2009). For instance, the LEADER approach,³ which is an integral part of the EU Rural development policy, is generally cited as an effective example of place-based strategy, based upon the participation of local communities in planning and implementing initiatives for local development (OECD 2006). As Wilson (2010) argues, local rural communities are the ground where multifunctional rural pathways of change, based on their economic, social and environmental capital, are most often rooted and rural development takes place.

Today's role of participatory governance and subsidiarity in EU policies (European Commission 2001) contributes to the revival of CPOs, at least in Europe, by granting them the opportunity to act in rural development alongside other local actors. For instance, in Italy, where CPOs are recognised by law,⁴ they can apply for Rural development funds, on par with other public and private organisations, e.g. CPOs may apply for financial support for the improvement of the economic value of forests, according to the Rural development programme 2007–2013 of Friuli Venezia Giulia Region.

This great potential of CPOs in rural development is what led us to deepen our knowledge of the *Consorti Vicinali* of Val Canale. In the next section we briefly illustrate the study area and the historical and legal origins of the *Consorti Vicinali*. Then, in section three we describe the method used to investigate whether these CPOs are still relevant in rural development. Section four presents the results of the research. Finally, in section five we draw some general conclusions and implications for practise and future research.

2. Study area and origins of the *Consorti Vicinali* of Val Canale

The study area is located in the Friuli Venezia Giulia region, in North East Italy, bordering Austria and Slovenia (Figure 1). It is an alpine area that includes two

³ The acronym LEADER derives from the French words “Liaison Entre Actions de Développement de l’Économie Rurale” which means “Links between the rural economy and development actions”. Since it was launched in 1991 as an initiative of the EU Regional policy, LEADER has provided rural communities in the EU with a method for playing an active role in steering the development of their territory (European Commission, 2006). Since 2007 the LEADER approach has been mainstreamed as an integral part of the EU Rural development policy (<http://enrd.ec.europa.eu>).

⁴ The Italian law recognises two types of CPOs: *Amministrazioni frazionali* (public entities – Law n. 1766/1927) and *Comunioni familiari montane* (private entities – Law n. 1991/1952 art. 34, Law n. 1102/1971 art. 10 and Law n. 97/1994 art. 3). In the first case, all inhabitants settled permanently in the territory have access to CPRs. In the second, the right to use the CPRs belongs to inhabitants settled permanently in the territory and descended from the original inhabitants.



Figure 1: The study area.

valleys, Canal del Ferro and Val Canale, which are geographically and historically connected. For centuries this area was held by the Austrian Empire and only became part of Italy in 1919.

This area is an important axis connecting the Mediterranean region to Central and Eastern Europe. Since ancient times, defensive works and infrastructure for the movement of people and goods have been a major source of employment in the area, alongside mineral exploitation. However, over the last twenty years this area has experienced considerable socioeconomic and environmental changes. Several of these changes are similar to other mountain regions and include the abandonment of traditional rural activities, such as agriculture, animal husbandry and forestry. But above all, changes have been driven by the enlargement of the EU and the consequent dismantling of international borders. In fact, up until the end of the last century, the presence of military facilities and custom-control services had created employment opportunities for the inhabitants of the valley, and attracted workers from all over Italy. The entry of Austria (1995) and Slovenia (2004) into the European Union, together with the end of the Cold War, led to closures of military facilities, customs houses and related economic activities.

The *Consorti Vicinali* investigated here are historically located in Val Canale, the valley that runs from West to East along the Fella river, and includes the

municipalities of Pontebba, Malborghetto-Valbruna and Tarvisio. These CPOs survive as a legacy from the original rural communities of Val Canale. Each rural community formed a *Vicinia* (neighbourhood, in English). These organisations developed spontaneously throughout the alpine area and included local families, united for mutual assistance. Members of these communities, called *vicini* (neighbours), held inalienable and indivisible rights to the use of local resources, for example land and wood, according to shared rules (Mor 1992).

They were formally recognised as Agrarian associations for agro-forestry-pastoral activities by Austrian imperial law in 1853 and were named *Consorti Vicinali* in 1871. They were independent from the local Municipality, and when the area became part of Italy they kept their status and assets, as well as their rights to use the local woods, that is the Forest of Tarvisio.⁵ Before annexation to Italy, the Austrian administration had regulated activities in the forest and assigned rights and quotas. The rights to use the Forest of Tarvisio, as well as the rights to use other commonly held assets (common wood gathering for fire and construction, grazing, collecting litter, dead wood, sand and stones etc.), were assigned to those *vicini* who were house-owners. Their house was called *realità*. Quotas were calculated based upon the size of this house and the needs of each household. It is worth noting that the rights were granted on the basis of both ownership and permanent residence in the *realità*. Therefore the rights were transferred with the sale of the *realità* or were withdrawn in cases where the *realità* was not used as a permanent residence. Each *realità* was recorded in the Land register. In the second half of the nineteenth century more than 900 *realità* were recorded, but their number has diminished since the end of World War II as a result of sales, exchanges and abandonment.⁶ At present there are circa 650 *realità* in the area (Barbina 1962; Landi 2009).

3. Methodology

In order to investigate whether the *Consorti Vicinali* of Val Canale (hereafter also *Consortio*, singular, or *Consorti*, plural) are still relevant in the development of the local rural areas and how they deal with the present needs and opportunities of these areas, the robustness and the viability of these organisations were analysed.

The method used for the robustness analysis is based upon the Institutional Analysis and Development (IAD) framework. More specifically, the *Consorti* adherence to Ostrom's (1990) *design principles* was investigated (Anderies

⁵ The common rights of these communities to use the Forest of Tarvisio (23,000 hectares) were already recognised in 1006, as stated in many documents and laws of the medieval and modern period.

⁶ Sales and exchanges of *realità* were linked to the personal stories of the families as well as to the historical and political context. Regarding the latter, during the period named *of the options*, from 1939 until the end of World War II, many inhabitants of the valley belonging to the German-speaking minority were forced to choose between Germany, leaving their goods behind in Italy, or Italy, but losing their German nationality status.

et al. 2004). The IAD framework is a conceptual framework for the analysis of collective action and common property governance (Kiser and Ostrom 1982; Ostrom 1986, 1990, 2005, 2007). It is used to explore how the attributes of communities, biophysical systems and institutions interact to affect choices and outcomes in complex systems. Institutions, which include the formal and informal rules, norms and shared strategies of human groups (Crawford and Ostrom 1995), are viewed as particularly important as they structure the incentives that actors face when making decisions. As a result of many years of research that accumulated several case studies of common property governance (Berkes 1977; McKean 1982), Ostrom (1990) was able to use the IAD framework to identify eight *design principles*. They were slightly modified recently by Cox et al. (2010) who conducted a review of these principles (Table 1).

The *design principles* are so labelled because they seem to be related to the robustness of CPOs, a quality that refers to the ability of a system to maintain essential system characteristics, and persist despite internal or external disturbances (Carlson and Doyle 2002, 2539). In other words, the design principles seem to be associated with the long-enduring, robust common property governance of CPRs by generating long-term incentives for conservation and sustainable patterns of use.

The design principles highlight several features of robust common property governance which include local self-organisation to create rules for the use of

Table 1: *Design principles.*

Principles	Description
1 Clearly Defined Boundaries	1A) Individuals or households who have rights to withdraw resource units from the CPR system must be clearly defined. 1B) The boundaries of the CPR must be well defined.
2 Congruence between appropriation and provision rules and local condition	2A) Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions. 2B) The benefits obtained by users from a CPR, as determined by appropriation rules, are proportional to the amount of inputs required in the form of labour, material, and/or money, as determined by provision rules.
3 Collective-Choice Arrangements	3) Most individuals affected by operational rules can participate in modifying operational rules.
4 Monitoring	4A) Monitors are present and actively audit CPR conditions and appropriator behaviour. 4B) Monitors are accountable to or are appropriators.
5 Graduated Sanctions	5) Appropriators who violate operational rules are likely to be assessed by other appropriators, officials accountable to these appropriators, or both, and given graduated sanctions (depending on the seriousness and context of the offense).
6 Conflict-Resolution Mechanisms	6) Appropriators and their officials have rapid access to low-cost local arenas to resolve conflict among appropriators or between appropriators and officials.
7 Minimal Recognition of Rights to Organize	7) The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.
8 Nested Enterprises	8) Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organised in multiple layers of nested enterprises.

Source: Cox et al. (2010).

CPRs (Ostrom 1990; Ostrom and Hesse 2007) that clearly define who is and who is not eligible to benefit from the use of these resources. Collective ownership and management of CPRs leads to a second-order dilemma and typically demands the development of monitoring systems that discourage rule violations and help to build trust within communities (Coleman 2009). However, sanctioning and conflict-resolution mechanisms are also necessary to discourage rule violation. The right to self-organise is another key feature of successful common property governance, which can break down when national governments apply external pressures in the form of laws or policies creating hurdles in maintaining a common property model (Bromley and Cernea 1989; Bromley et al. 1992; Baland and Platteau 1996). Finally, governance activities in successful systems are often organised in networks between user groups and larger governmental jurisdictions (horizontal and vertical linkages) (Cox et al. 2010).

In order to analyse the Consorzi viability we took into account that rural viability relates to environmental, social and economic assets of rural areas. Hence, we assumed that it refers here predominantly to: environmental aspects, such as the implementation of management plans for natural CPRs and the presence of Natura 2000 sites among the Consorzi's CPRs; social concerns, that is the degree of participation in the Consorzi governance and the age of participants; and economic aspects, related to the capacity of Consorzi to create job opportunities in managing their CPRs and to have access to EU funds. Among the numerous sets of indicators for sustainability and rural development analysis,⁷ in order to identify the proposed indicators, listed in Table 2, we followed the SMART criteria, according to which an indicator should be specific, measurable, available/achievable in a cost effective way, relevant, and available in a timely manner (<http://enrd.ec.europa.eu>). The proposed indicators, based on empirical evidence, cover today's key requirements for Consorzi and provide us with reliable knowledge of their viability (Bossel 2001).

According to Ostrom (1990, 179–180), to evaluate the adherence to the design principles, for each case (Consorzio) we indicated which of the design principles

Table 2: Viability indicators.

	Dimension	Description
1	Environmental viability	1A) Implementation of management plans for natural CPRs. 1B) Presence of Natura 2000 sites.
2	Social viability	2) Participation in the Consorzi governance.
3	Economic viability	3A) Creation of job opportunities. 3B) Access to EU funds.

⁷ See, among others: FAO (2014) and the Monitoring and evaluation framework for the CAP 2014–2020 set out by EU regulations at different levels, i.e. Regulation (EU) No 1306/2013, Regulation (EU) No 1303/2013, and Regulation (EU) No 1305/2013.

clearly apply (“yes”), which apply in a weak form (“weak”), and which clearly do not apply (“no”). A common coding system for dichotomous variables indicates: no=0; yes=1, where “yes” and “no” are the labels, and 0 and 1 are the assigned values. The label “weak” was assigned the arbitrary value of 0.5. The same coding system was used for the viability indicators. This allowed us, firstly, to determine the total score of each Consorzio for both robustness and viability and, consequently, to test whether the adherence to the design principles is associated with the viability of the Consorzi.

The research is based upon analysis of secondary and primary data collected in 2011 during the implementation of the project by the aforementioned Mountain Community.

Secondary data was provided by the internal documents of each Consorzio, and are:

- *the Statute*, indicating the purpose of Consorzi, how to acquire the membership status, the use of CPRs, the inalienability of property, the governing bodies and their role, conflict-resolution mechanisms etc.;
- *the Rules*, regarding the appropriation of CPRs: time (e.g. when harvesting is permitted), quantity (e.g. how much wood is allowed to be collected), and modes (e.g. shifts or draw lots). Each Consorzio may have more Rules, according to the type of CPRs, for instance Rules for property rentals and Rules for timber provision; and
- *the Management plan*, a technical tool provided by external experts accountable to the CPOs. It is a long-term plan (approx. 10 years) and mandatory for those CPOs with more than 100 hectares of woods.

Primary data was collected via semi-structured interviews with key informants, namely the presidents of Consorzi or their delegates. Coherently with the IAD framework, the respondents were asked to report information about: legal status of Consorzi; type, extent and characteristics of CPRs (natural resources and real estate); number of members and their participation; relational system; management activities; and economic characteristics. As is well-known, a semi-structured interview begins with a small set of open-ended questions, but participants are encouraged to provide detail and clarification. Hence, this method allowed us to collect additional information including the main changes that have occurred over the years regarding the purpose of the Consorzi, the membership status, and the use of the CPRs, as well as any related challenges. Furthermore, information about new opportunities in development strategies involving the Consorzi themselves was gathered during the implementation of other activities of the project by the Mountain Community (see Section 4.4).

Finally, it is important to point out that at the time of the research most information about the Consorzi was unknown or uncertain; very few studies had been carried out in the past, as cited in Section 2. This research, i.e. the analysis of internal documents and the empirical survey, allowed us to fill

this gap, at least partly. The findings are illustrated and discussed in the next section.

4. Results and discussion

The empirical survey documented 19 *ConSORZI Vicinali* in Val Canale, listed in Table 3 below. They include one in Slovenia, whose assets (lands) partly extend into Italian territory.

The survey revealed that from a legal perspective, 9 are recognised as *Comunioni familiari montane*, while the others have maintained their original structure as Agrarian associations. The latter are recognised by Italian law, but not as CPOs (see footnote 4); the Slovenian Consorzio is regulated by Italian law with regards to those assets located in Italy. Table 4 summarises the legal status, types and extent of common assets, and the number of members of each Consorzio.

The characteristics of CPOs affect the adoption of formal/informal rules in the governance of CPRs. As documented by Casari (2007) regarding CPOs in the Trentino region of the Italian Alps, formal rules (*Carte di Regola*) were more likely to be adopted by less isolated communities and larger communities in terms of population, and with a large endowment of common property resources. Similarly, legal status, type and extent of CPRs, and number of members of the Consorzi affect the type of formal documents available for analysis (Table 5). As regards the legal status, only those Consorzi recognised as *Comunioni familiari montane* have to draw up a statute. Whereas, the rules and the management plans

Table 3: Denomination of *ConSORZI Vicinali*.

Code	Denomination
A	Consorzio Vicinale Comunità di Pontebba Nova/Nachbarshaft Pontafel
B	Consorzio Vicinale di Laglesie S. Leopoldo/Nachbarshaft Leopoldskirchen
C	Consorzio Vicinale/Nachbarshaft Santa Caterina
D	Consorzio Vicinale di Bagni di Lusnizza/Nachbarshaft Lussnitz
E	Consorzio Vicinale di Malborghetto-Cucco/Nachbarshaft Malborgeth Gugg
F	Consorzio Vicinale di Ugovizza/Nachbarshaft- Gemeinde Weide Uggowitz
G	Consorzio Vicinale di Valbruna/Nachbarshaft Wolfbach
H	Consorzio Agrario – Vicinia di Camporosso/Agrar Gemeinschaft – Nachbarshaft Saifnitz
I	Consorzio Agrario – Comunanza – Vicinia di Tarvisio/Agrar Gemeinschaft – Nachbarshaft der Stadtgemeinde Tarvis
L	Vicinia Plezzut
M	Consorzio Vicinale Cave del Predil
N	Consorzio “Comunità di Rutte”/Dorfshaft Greuth
O	Consorzio di Ortigara Inferiore
P	Consorzio Località di Fusine in Valromana
Q	Consorzio Pascoli dei Privilegiati Proprietari di Fusine in Valromana
R	Consorzio Agricolo di Aclate/Ortschaft Eichleten
S	Consorzio Agricolo località di Poscolle
T	Consorzio Vicinale di Coccau/Dorfshaft Goggau
U	Consorzio Agrario di Ratece/Agrarna Skupnost

Table 4: Legal status, type and extent of CPRs, and number of members of *Consorzi Vicinali*.

Code	Legal status (a)	CPRs	Members
A	1	Natural resources: lands (forest, pasture, unproductive land, uncultivated land), mountain rivers=3458.54 ha Real estate: 5 alpine huts, 3 mountain huts, 1 former dairy farm (Consorzio Headquarters, HQ), 2 urban buildings, 2 sheds	88
B	1	Natural resources: lands (forest, pasture, meadows, gravel)=250 ha Real estate: 3 alpine huts, 1 former dairy farm (Consorzio HQ)	60
C	2	Natural resources: lands (forest, pasture, meadows, gravel) (ha not available) Real estate: none	4
D	1	Natural resources: lands (forest, meadows, gravel), sulphur water spring=approx. 170 ha Real estate: 1 alpine hut, 1 former dairy farm	24
E	1	Natural resources: lands (forest, pasture, meadows, unproductive land), mountain rivers=56 ha Real estate: 2 alpine huts, 1 house (Consorzio HQ)	96
F	1	Natural resources: lands (forest, pasture, meadows), mountain rivers=160 ha Real estate: 3 alpine huts, 1 former dairy farm (Consorzio HQ) Assets located in Austria: lands (forest, pasture)=117 ha; 3 mountain huts, 1 hunting post	112
G	1	Natural resources: lands (forest, meadows)=10 ha Real estate: 1 alpine hut, 1 former dairy farm (Consorzio HQ), 1 shed	59
H	1	Natural resources: lands (forest, pasture, agricultural lands, other lands)=127 ha Real estate: 1 alpine hut, 3 houses (1 is the Consorzio HQ), 2 depots, 6 rural buildings	150
I	2	Natural resources: lands (forest, pasture, meadows)=120 ha Real estate: 1 alpine hut	75
L	2	Natural resources: lands (forest) (ha not available) Real estate: none	5
M	2	Natural resources: not available Real estate: not available	Not available
N	1	Natural resources: lands (forest, unproductive land)=100 ha Real estate: former elementary school	51
O	2	Natural resources: lands (meadows)=1 ha Real estate: none	4
P	2	Natural resources: lands (forest, pasture)=23 ha Real estate: none	53 (b)
Q	2	Natural resources: lands (forest, pasture)=117 ha Real estate: 1 alpine hut	51 (b)
R	2	Natural resources: lands (forest) (ha not available) Real estate: 1 forest road; 1 wood yard	8
S	2	Natural resources: none Real estate: 1 aqueduct, 1 drinking-trough	4
T	1	Natural resources: lands (forest, pasture, meadows)=13 ha Real estate: 1 house (Consorzio HQ)	35
U	2	Natural resources: lands (forest, pasture, meadows, unproductive land)=2500 ha in total, 703 ha in Italy Real estate: located in Slovenia (not available)	200

(a) Legal status: 1=*Comunione familiare montana*; 2=Agrarian association.

(b) P has 53 members, of whom 51 are also members of Q.

Table 5: Internal documents of *ConSORZI Vicinali*.

Code	Statute	Rules	Management plan
A	Yes	Yes	Yes
B	Yes	No	Yes
C	No	No	No
D	Yes	No	No
E	Yes	Yes	No
F	Yes	Yes	Yes
G	Yes	No	No
H	Yes	Yes	Yes
I	No	No	No
L	No	No	No
M	No	No	No
N	Yes	No	No
O	No	No	No
P	No	Yes	Yes
Q	No	Yes	Yes
R	No	No	No
S	No	No	No
T	Yes	Yes	No
U	No	Yes	No

are mainly designed according to the type and extent of CPRs, as well as to member characteristics (number, age, etc.). However, both formal and informal rules play an important role in managing CPRs (Ostrom and Ahn 2009; Ostrom 2011). This is also the case of the *ConSORZI*, as shown above.

4.1. Robustness of *ConSORZI Vicinali*

Table 6 provides the results of the adherence of the *ConSORZI Vicinali* to the *design principles*, and consequently their theoretical robustness to socioeconomic and environmental changes. As shown in Table 4, most of the *ConSORZI* have clearly defined members and CPRs, whereas the property for the others (C-L-M-R) has yet to be established (dp1A and dp1B).

Table 5 indicates that among the 19 *ConSORZI Vicinali*, 6 have a management plan (A-B-F-H-P-Q) and 8 have developed rules for the use of common assets (A-E-F-H-P-Q-T-U). The absence of a management plan is primarily due to a limitation in type and extent of natural assets, whereas the absence of rules is primarily due to the fact that the *ConSORZI* have a limited role, mainly focused on CPR maintenance. However, the absence of these documents does not mean that the *ConSORZI* are no longer active. In fact, most of them organise an annual programme, in accordance to members' needs and asset conditions, which includes both routine and emergency maintenance. Moreover, unwritten rules are still important and respond to a code based on trust and reciprocity (dp2A).

Regarding the benefits obtained by users and how proportional they are to the inputs, no specific information was given (dp2B).

Table 6: Adherence to the design principles (dp) of Consorzi Vicinali.

Code	dp1A	dp1B	dp2A	dp3	dp4A	dp4B	dp5	dp6	dp7	dp8
A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Weak	Yes	Yes
B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
C	Yes	Weak	Weak	Yes	Weak	Weak	Weak	Weak	Yes	Yes
D	Yes	Yes	Weak	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
G	Yes	Yes	Weak	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I	Yes	Yes	No	No	Weak	Weak	No	No	Yes	No
L	Yes	Weak	No	No	Weak	Weak	No	No	Yes	No
M	No	No	No	No	Weak	Weak	No	No	Yes	No
N	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
O	Yes	Yes	No	No	Weak	Weak	No	No	Yes	No
P	Yes	Yes	Yes	Yes	Yes	Yes	Weak	Weak	Yes	Yes
Q	Yes	Yes	Yes	Yes	Yes	Yes	Weak	Weak	Yes	Yes
R	Yes	Weak	Weak	Yes	Weak	Weak	No	No	Yes	Weak
S	Yes	Yes	No	Yes	Weak	Weak	No	No	Yes	Weak
T	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
U	Yes	Yes	Yes	Yes	Yes	Yes	Weak	Weak	Yes	Yes

In the case of those Consorzi recognised as *Comunioni familiari montane* (A-B-D-E-F-G-H-N-T), as stated in their statutes, the members participate in modifying operational rules and in general in decision-making processes, both directly by taking part in the Assembly, which is held regularly each year, and indirectly through their representatives. The Assembly is also an important collective decision-making body for the other Consorzi, specifically for those still active in CPR management (C-P-Q-U) (dp3).

The statute of the Consorzi recognised as *Comunioni familiari montane* entrusts the monitoring of the observance of the rules to the Board of Directors, which includes five members elected by the Assembly of Consorzio members. This body is appointed for three years and the directors may then be re-elected. Nevertheless, for all the Consorzi there is a form of mutual control by the users themselves, which derives from having joint ownership. Only in the case of limited assets, monitoring is not relevant (dp4A). The monitors are the members of each Consorzio (dp4B).

The statutes provide graduated sanctions: penalties, suspension and cancellation of rights, depending upon the severity of offenses. In other cases (C-P-Q-U) there is a system of unwritten sanctions stating, such as the suspension and cancellation of rights, or that the violator must provide a service, e.g. cleaning or repairing (dp5).

The conflict resolution mechanism is specified by most of the statutes (B-D-E-F-G-H-N-T), usually stating that the resolution of the disputes is assigned to an arbitration panel, which has wide investigative power and the authority to advise

the Board of Directors, who will judge the dispute. In other Consorzi (A-C-P-Q-U) the mechanism is defined by informal unwritten rules (dp6).

The right to self-organise exists in those areas where the Consorzi can act independently, such as hydraulic and forestry works, land and real estate conservation and development. Moreover, the Consorzi are allowed to carry out some tasks on behalf of local Municipalities, the Mountain Community and/or other organisations, for which they receive payment. However, the small number of members in some Consorzi, many of whom are elderly, could limit the ability to self-organise and manage local resources (dp7).

Finally, the relational system in which the Consorzi are embedded was also investigated, i.e. their relationships with local and external stakeholders (dp8). Interaction with some local governmental jurisdictions, such as Municipalities and the Mountain Community, is frequent as a result of shared interests and geographic proximity (e.g. the Municipality of Pontebba and the Mountain Community are members of some Consorzi). In contrast, links with the Friuli Venezia Giulia regional administration, and larger local governmental jurisdictions, are weaker mainly due to geographical distance. The Consorzi also link to non-governmental actors to carry out tasks such as wood hauling and maintenance of rural buildings, thus providing job opportunities in the area. The research also revealed that usually only the Consorzi sharing the management rights to some common assets have strong relationships between themselves (e.g. C and D, P and Q). In 2002 most of the Consorzi recognised as *Comunioni familiari montane* (except F) were grouped under an umbrella association aimed at coordinating their activities and valorising their collective resources. The Agrarian associations are also involved in some activities within this umbrella association, given that the members of different Consorzi may be the same individuals.

4.2. Viability of Consorzi Vicinali

The results of the viability analysis are summarised in Table 7. As shown in Table 5, 6 Consorzi (A-B-F-H-P-Q) have a plan for managing their natural resources. For those Consorzi with more than 100 hectares of woods, planning is mandatory, but it has been shown to be an effective tool for organising the various activities necessary for the stewardship of the natural CPRs. For most of the other Consorzi, written or unwritten management rules are also of importance (vi1A).

A few Consorzi (A-F-G-H-P-Q-R) own CPRs, some of which are included in the Natura 2000 network.⁸ The existence of environmental protection constraints in these areas has modified some management activities. Moreover, in absence of the required management plan for the Natura 2000 sites, for which the Friuli

⁸ Natura 2000 is an EUwide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It incorporates Special Areas of Conservation (SAC), designated by Member States under the Habitats Directive, and Special Protection Areas (SPAs), designated by Member States under the 1979 Birds Directive (<http://ec.europa.eu/environment/nature/natura2000>).

Table 7: Adherence to the viability indicators (vi) of Consorzi Vicinali.

Code	vi1A	vi1B	vi2	vi3A	vi3B
A	Yes	Yes	Yes	No	Yes
B	Yes	No	Yes	No	Yes
C	No	No	Yes	No	No
D	No	No	Yes	No	No
E	No	No	Weak	No	No
F	Yes	Yes	Yes	Yes	Yes
G	No	Yes	Yes	No	No
H	Yes	Yes	Yes	No	Yes
I	No	No	No	No	No
L	No	No	No	No	No
M	No	No	No	No	No
N	No	No	Weak	No	No
O	No	No	No	No	No
P	Yes	Yes	Yes	Yes	Yes
Q	Yes	Yes	Yes	Yes	Yes
R	No	Yes	Yes	No	No
S	No	No	Yes	No	No
T	No	No	Yes	No	No
U	No	No	Yes	No	No

Venezia Giulia regional administration is responsible, for any activity, even routine maintenance, permission must be obtained from the competent body, in this case the aforementioned administration. This process is often complex and time-consuming, bringing with it possible negative effects, considering both the nature of CPRs and that many rural activities have to be implemented in specific periods of the year. Nevertheless, to be part of the Natura 2000 network is also an opportunity for the Consorzi, as long as their purpose of sustainable resource use matches the primary objective of protected areas, that is nature conservation and biodiversity protection (Berge 2005; Pieraccini 2015). Moreover, it represents an opportunity also in terms of access to the public funds of the LIFE programme⁹ (vi1B).

The most important decision-making body, not only in modifying operational rules, is the Assembly of members. Participation varies, with high levels in most Consorzi (more than 50% for Consorzi A-B-D-G-H-P-Q-T-U, and equal to 100% for C-F-R-S), while just a few have a level of participation equal to 40% (N) or even less (E). As expected, there is no participation in inactive Consorzi (I-L-M-O). As documented by Maskey et al. (2006) and Adhikari et al. (2014), participation in CPRs management is based on the socio-economic profile of an individual (e.g. age and gender) and the level of participation is determined

⁹ LIFE is the EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU. It also supports the emergency maintenance of some assets, e.g. cleaning pastures belonging to alpine dairies (<http://ec.europa.eu/environment/life>).

by the benefits obtained. Also in the case of Consorzi, participation is strictly related to the members' age and to the economic viability of the Consorzi. Some Consorzi (R-S) have a high level of participation because of the limited number of members, of which the majority are elderly and retired. Conversely, younger members often do not participate not for lack of interest or sense of not belonging, but due to employment obligations, e.g. many younger members work far from the headquarters of the Consorzio (vi2).

However, the capacity of the Consorzi to create job opportunities in managing the CPRs seems to increase the participation of younger members. This is the case in three Consorzi (F-P-Q) that have created jobs in traditional economic activities such as agriculture, animal husbandry and forestry. In these Consorzi about half of the members are engaged in these activities. It is noteworthy that in some cases the young individuals are volunteers in the Consorzi, thus demonstrating their sense of belonging to the local community (vi3A).

Finally, to finance adaptation strategies, communities often need external support, whose effectiveness is strictly related to the community-driven request to fund their own projects (Murtinho et al. 2013). Regarding the Consorzi, a few of them have benefited from EU funds, for the application of which they had to plan strategies and activities. Regarding the rural development policy, and specifically the Rural Development Programme of Friuli Venezia Giulia 2007–2013, some Consorzi (A-B-H) have received financial support for conservation of rural heritage and protection of forests. Consorzio F, whose assets extend into Austria, had the opportunity to access a cross-border project, i.e. the INTERREG Italy – Austria 2007–2013 programme, part of the cohesion policy. Finally, the projects of two Consorzi (P-Q) were financed by the LIFE Programme for the conservation of areas of high environmental value (vi3B).

4.3. Robustness and viability

It is possible to test whether the adherence to the *design principles* is associated with the viability of the Consorzi by comparing the total scores of each Consorzio for both robustness and viability. The results are shown in Table 8.

As expected, the inactivity of some Consorzi corresponds to a low adherence to the *design principles* (I-L-M-O) and a high level of adherence is often directly related to their viability (A-B-F-H-P-Q). However, some Consorzi show a low viability even if most of the *design principles* apply (D-E-G-N-T-U). As in the case of Consorzio E, which owns two recently restored alpine huts and the surrounding pastures, resources that are not utilised and where only limited management is carried out, e.g. resource basic maintenance, and wood cutting and selling of circa 3 hectares of forest by an external firm (*vendita in piedi*, in Italian). Another case is that of Consorzio N, which owns 100 hectares of land, of which 95 hectares were used in the past for wood storage. Nowadays, this land is not utilised, neither for other functions, such as touristic pathways, info-points, cultural locations etc., nor for the original function of wood storage, for instance collectively with other

Table 8: Robustness and viability scores of *ConSORZI Vicinali*.

Code	Robustness	Viability
A	9.5	4
B	10	3
C	7	1
D	9.5	1
E	10	0.5
F	10	5
G	9.5	2
H	10	4
I	4	0
L	3.5	0
M	2	0
N	9	0.5
O	4	0
P	9	5
Q	9	5
R	5.5	2
S	5.5	1
T	10	1
U	9	1

ConSORZI and/or private wood-owners, given that this ConSORZIO does not manage its own 5 hectares of forest. Only the former elementary school, today used by a local cultural association, provides ConSORZIO N with a limited economic return (Carestiato 2014).

The inconsistency between robustness and viability is explained by the fact that for these ConSORZI the adherence to the *design principles* is primarily due to the deep affection of their members and of the community as a whole to their territory, rather than to the capacity to adapt to socioeconomic and technological changes. Therefore, the long-endurance of these CPOs is mostly due to their historical-cultural function, to which the environmental function, namely the minimal management of their resources, is related. Nevertheless, also these ConSORZI are seeking to change their socioeconomic functions in order to adapt to the current needs of the local community, as described in the next section.

4.4. New challenges and opportunities for ConSORZI Vicinali

Nowadays the *ConSORZI Vicinali* have to face new challenges. The economic and historical events in Val Canale and surrounding areas have affected these ancient CPOs, most notably with regards to the use of CPRs and their related rights. As already stated, originally membership was conditional upon acquisition of and the residence in a *realità*. Currently many of these houses are not permanently inhabited and are often used as second homes in the summer. In other words, the original condition of permanent residence no longer exists. Moreover, several

people in the valley own more than one *realità*, which is rented or left uninhabited, sometimes located in municipalities other than the owner's residence. This means that an owner of more than one *realità* can be a member of more than one Consorzio at the same time, as well as a non-resident owner. This explains why the previous socioeconomic functions of the Consorzi have changed, as well-described in the statutes of the *Comunioni familiari montane*. In fact, they indicate that CPRs have to be used for agro-forestry-pastoral activities, farm holidays and related services, and for any other activity consistent with the nature and the purposes of the organisation, and important for the development of the local community. Nevertheless, the survey also revealed some inconsistencies between the rules of the statutes and the actual practises, mainly due to the historical and socioeconomic changes in the area, i.e. the abandonment of rural activities and consequently the under-utilisation of some CPRs, especially pastures and mountain huts, as well as the decrease and aging of members that affects the capacity to implement new strategies. For example, only 13 of the 19 huts owned by the Consorzi are used for mountain grazing, some of which have few cows and sheep, not always owned by local farmers. Instead, the use of the Forest of Tarvisio has remained almost unchanged: wood cutting, for the Consorzi members' needs (i.e. firewood and timber) and for some local and external markets, still takes place on a fairly regular basis.

The ability of the Consorzi to maintain, to reinforce and, when necessary, to change is strictly related to their past and recent history, to the internal and external events that have affected them, in particular since the second half of the twentieth century. Nevertheless, their role in the past in managing local resources, and the knowledge and expertise accumulated during their long existence, should be the starting point for planning new strategies of viability and development. As happened during the implementation of the project by the Mountain Community of Gemonese, Canal del Ferro and Val Canale. In fact, the *Consorzi Vicinali*, as well as the authors of this paper, were also directly involved in identifying the main concerns related to the past and the current activities of the Consorzi, that are: (i) the management and maintenance of forest roads; (ii) mushroom picking; and (iii) the management of the Forest of Tarvisio.

Before annexation to Italy, the Consorzi were responsible for the maintenance of forest roads since they were the principal owners and users. Nowadays several entities own the lands crossed by these roads: the Friuli Venezia Giulia regional administration, the local Mountain Community, the local Municipalities, other larger governmental jurisdictions (the Ministries of Interior and of Defence), individuals and the Consorzi themselves. This situation alongside the overlapping of ownership patterns (public, private and collective) has caused a high level of uncertainty regarding who is responsible for maintenance. Moreover, financial resources, usually from European and regional funds, are often spent on building new forest roads and on emergency maintenance, while routine maintenance is neglected. Hence, nowadays the

routine maintenance of forest roads¹⁰ is a key problem because the accessibility of these roads for agriculture, animal husbandry, wood hauling, tourism and other activities could be threatened.

With regards to mushroom picking, regional law states that the Consorzi members do not need authorisation. Instead, other pickers must acquire authorisation or temporary permits, which are currently granted by Municipalities and Mountain Communities upon payment of appropriate fees. However, authorisation could be carried out by the Consorzi, so providing them with financial resources to invest in activities, such as mushroom processing, marketing and sales, as well as other collective projects.

Finally, when Val Canale was annexed to Italy, the Forest of Tarvisio became the property of the Italian State. Nowadays it is part of the Ministry of Interior, which is responsible for its management, a management aimed at protecting biodiversity and reducing the risk of floods, through planned cutting and clearing. Nevertheless, this task should be carried out collectively with the Consorzi and other local actors, in order to involve them, as in the past, in the stewardship of this valuable resource.

Technical, economic and legal feasibility of plans, regarding these three concerns and involving the Consorzi themselves in the maintenance of forest roads, mushroom picking or the management of the Forest of Tarvisio, were assessed. The forest road maintenance emerged as the most feasible plan, including definition of common rules for the use of roads, costs for routine maintenance and type and amount of input required in the form of funds, materials or work. Moreover, taking into consideration that to sustain CPRs in ecological, economic, and social terms multiple stakeholders have to act collectively in managing resource systems (Steins and Edwards 1999), the Consorzi decided to implement their plan through a collective approach. In other words, they decided to work alongside other local actors such as private owners, tourist associations and sports clubs. Many benefits for the Consorzi, and the local community as a whole, could flow from the routine maintenance of forest roads, since they are necessary to reach woods, meadows and huts, hunting grounds and areas of natural and historical value. Therefore, the management of these facilities could improve the accessibility for productive uses (agriculture, animal husbandry and wood hauling) and recreational activities (tourism above all), contribute to environmental and cultural conservation, as well as create new jobs and revenue streams.

It is noteworthy that the main outcome of this part of the project, which in itself has been a collective activity involving all the Consorzi, is the identification of a collective goal and a collective approach in achieving it.

¹⁰ Maintenance is distinguished from emergency repairs, reconstruction and improvement activities, and aims to reduce deterioration of roads. It may involve a number of different activities. The most important of these are routine activities, which should be performed throughout the life of a facility, and periodic activities, which have to be carried out at specified intervals (e.g. clearing drainage channels after winter or after flooding) (Ostrom et al. 1990, 7).

5. Conclusions

This research is aimed at investigating whether the *Consorzi Vicinali* of Val Canale are still relevant in the development of their territory, as well as at contributing towards debates on the role of CPOs, and of collective action in general, in rural development.

The Consorzi have a long history of mutual assistance and collective use and management of local resources (forests, pastures, alpine huts etc.), thus contributing to a balanced development of the local area. The historical and economic events in Val Canale and surrounding areas have also affected these CPOs. In many cases, this has led to a review of purposes in order to adapt the CPRs management to today's challenges, e.g. the use of common resources for agro-forestry-pastoral activities, as well as for farm holidays and related services.

The survey revealed some strengths and weaknesses of the *Consorzi Vicinali*. According to the *design principles*, the robustness is quite high. Nevertheless, this ability to maintain some desired characteristics despite internal and external fluctuations (Anderies et al. 2004) does not always match with a high viability, in terms of natural resource management, internal participation, creation of job opportunities especially for young people, and capacity to attract financial support. This inconsistency is primarily due to the fact that some Consorzi have not been able to revise their functions according to the current needs of the local community. However, the sense of belonging and the defining sentiments of the community allowed all the *Consorzi Vicinali* to maintain a decisive role in the stewardship of the rural area in which they are rooted. This evidence is also endorsed by those activities of the project of the local Mountain Community that allowed the Consorzi themselves to identify a collective goal, namely the forest road maintenance, and a collective approach in achieving it. These results are consistent with the local development paradigm. In fact, according to it local actors should self-organise and self-develop rules for the use of local resources, and act collectively in the management of their own territory, in harmony with local identity, culture and natural resources.

The viability analysis allowed us to highlight yet other important aspects of the Consorzi in addition to those of the robustness analysis. For instance, it pointed out that only one third of the Consorzi benefited from EU funds, even if nowadays the access to these funds is crucial for managing most of the CPRs, but which requires very specific project management skills (European Commission 2004). Moreover, we have understood that some natural resources are part of the Natura 2000 network, that represents an opportunity to protect biodiversity, as well as to access EU funds. Hence, we argue that the two analyses used in a complementary way have been effective here in giving a more comprehensive description of CPOs and their (potential) role in rural development. In fact, all the findings enable us to say that the *Consorzi Vicinali* still have an important role to play in the collective stewardship of rural resources. Some Consorzi already act effectively. However, also the others have the potential to adapt to new challenges

and emerging needs, given that the deep rootedness and the sense of belonging of the local community to its territory are the strength of all the Consorzi.

Our findings also indicate some implications for policy and practice and proposals for future research. For instance, rural development agendas could include measures to leverage internal capabilities, such as project management skills in order to improve the effectiveness of fundraising, and/or relational skills, for nourishing participation and networking processes. Other rural development measures could focus on under-utilised CPRs, e.g. pastures and alpine huts, and support their multifunctional uses by other local actors, even if not members of the Consorzi, in particular young people.

Finally, future research should investigate the robustness and viability of other CPOs, including those similar to the *Consorzi Vicinali* regarding historical and legal status (e.g. the Austrian organisations), in order to detect similarities and differences, and potential driving forces. Future research should also broaden the study of CPOs' viability, identifying other indicators and other methodologies.

Literature cited

- Adhikari, S., T. Kingi, and S. Ganesh. 2014. Incentives for Community Participation in the Governance and Management of Common Property Resources: The Case of Community Forest Management in Nepal. *Forest Policy and Economics* 44:1–9.
- Agrawal, A. 2001. Common Property Institutions and Sustainable Governance of Resources. *World Development* 29(10):1649–1672.
- Anderies, J. M., M. A. Janssen, and E. Ostrom. 2004. A Framework to Analyze the Robustness of Social-ecological Systems from an Institutional Perspective. *Ecology and Society* 9(1):18. www.ecologyandsociety.org/vol9/iss1/art18/.
- Baland, J. M. and J. P. Platteau. 1996. *Halting Degradation of Natural Resources, is there a Role for Rural Communities?* Oxford: FAO and Clarendon Press.
- Barbina, A. 1962. *Le servitù boschive della Valcanale*. Udine, Italy: Camera di commercio industria e agricoltura.
- Berge, E. 2005. Protected Areas and Traditional Commons: Values and Institutions. *Norsk Geografisk Tidsskrift-Norwegian Journal of Geography* 160(1):65–76.
- Berkes, F. 1977. Fishery Resource Use in a Subarctic Indian Community. *Human Ecology* 5(4):289–307.
- Berkes, F., ed. 1989. *Common Property Resources: Ecology and Community-Based Sustainable Development*. London: Belhaven Press.
- Berkes, F., D. Feeny, B. J. McCay, and J. M. Acheson. 1989. The Benefits of the Commons. *Nature* 340:91–93.
- Bossel, H. 2001. Assessing Viability and Sustainability: A Systems-based Approach for Deriving Comprehensive Indicator Sets. *Conservation Ecology* 5(2):12. www.consecol.org/vol5/iss2/art12/.
- Bravo, G. and T. De Moor. 2008. The Commons in Europe: From Past to Future. *International Journal of the Commons* 2(2):155–161.

- Bromley, D. W. and M. M. Cernea. 1989. *The Management of Common Property Natural Resources: Some Conceptual and Operational Fallacies*. Discussion Paper no. 57. Washington DC: The World Bank.
- Bromley, D. W., D. Feeny, M. McKean, P. Peters, J. Gilles, R. Oakerson, C. F. Runge, and J. Thomson, eds. 1992. *Making the Commons Work: Theory, Practice, and Policy*. San Francisco: ICS Press.
- Carestiato, N. 2014. I patrimoni fondiari collettivi in Friuli Venezia Giulia. In *Ville friulane e beni comunali in età veneta*, ed. A. Bianchetti, 125–192. Udine: Forum.
- Carlson, J. M. and J. Doyle. 2002. Complexity and Robustness. *Proceedings of the National Academy of Science* 99(Suppl. 1):2538–2545.
- Casari, M. 2007. Emergence of Endogenous Legal Institutions: Property Rights and Community Governance in the Italian Alps. *The Journal of Economic History* 67(1):191–226.
- Clark, L. 2010. Seeing the Social Capital in Agricultural Innovation Systems: Using SNA to Visualise Bonding and Bridging ties in Rural Communities. *Knowledge Management for Development Journal* 6:206–218.
- Coleman, E. A. 2009. Institutional Factors Affecting Biophysical Outcomes in Forest Management. *Journal of Policy Analysis and Management* 28(1): 122–146.
- Cox, M., G. Arnold, and S. Villamayor Tomás. 2010. A Review of Design Principles for Community-based Natural Resource Management. *Ecology and Society* 15(4):38. www.ecologyandsociety.org/vol15/iss4/art38/.
- Crawford, E. S. and E. Ostrom. 1995. A Grammar of Institutions. *The American Political Science Review* 89(3):582–600.
- De Moor, T. 2008. The Silent Revolution: A New Perspective on the Emergence of Commons, Guilds, and Other Forms of Corporate Collective Action in Western Europe. *International Review of Social History* 53(Supplement):179–212.
- European Commission. 2001. *European Governance – A White Paper*. COM(2001)428.
- European Commission. 2004. *Project Cycle Management Guidelines*. http://ec.europa.eu/europeaid/multimedia/publications/publications/manuals-tools/t101_en.htm.
- European Commission. 2006. *The Leader Approach – A Basic Guide*. Luxembourg: Office for Official Publications of the European Communities.
- FAO. 2014. *SAFA. Sustainability Assessment of Food and Agriculture systems. Guidelines*. www.fao.org/3/a-i3957e.pdf.
- Galtung, J. 1980. *Il Faut Manger Pour Vivre*. Cahiers de l'Institut universitaire des études di développement. Paris: PUF.
- Hettne, B. 1990. *Development Theory and the Three Worlds*. New York: Longman Scientific and Technical.
- Kiser, L. L. and E. Ostrom. 1982. The Three Worlds of Action. A Metatheoretical Synthesis of Institutional Approaches. In *Strategies of Political Inquiry*, ed. E. Ostrom, 79–222. Beverly Hills: Sage.

- Laborda Pemán, M. and T. De Moor. 2013. A Tale of Two Commons. Some Preliminary Hypotheses on the Long-term Development of the Commons in Western and Eastern Europe, 11th–19th Centuries. *International Journal of the Commons* 7(1):7–33.
- Landi, S. 2009. Il Fondo Edifici di Culto per la protezione della natura. *Silvae* V(12):115–133.
- Lee, J., A. Árnason, A. Nightingale, and M. Shucksmith. 2005. Networking: Social Capital and Identities in European Rural Development. *Sociologia Ruralis* 45:269–283.
- Leigh, N. G. and E. J. Blakely. 2013. *Planning Local Economic Development. Theory and Practice*. Thousand Oaks, CA: Sage.
- Magnaghi, A. 2010. *Il progetto locale. Verso la coscienza di luogo*. Torino: Bollati Boringhieri.
- Maskey, V., T. G. Gebremedhin, and T. J. Dalton. 2006. Social and Cultural Determinants of Collective Management of Community Forest in Nepal. *Journal of Forest Economics* 11:261–274.
- McAraevey, R. 2009. *Rural Development Theory and Practice*. New York, NY: Routledge.
- McKean, M. A. 1982. The Japanese Experience with Scarcity: Management of Traditional Common Lands. *Environmental Review* 6(2):63–91.
- McKean, M. A. 1992. Success on the Commons. A Comparative Examination of Institutions for Common Property Resource Management. *Journal of Theoretical Politics* 4(3):247–281.
- Meinzen-Dick, R., M. DiGregorio, and N. McCarthy. 2004. Methods for Studying Collective Action in Rural Development. *Agricultural Systems* 82:197–214.
- Mor, C. G. 1992. Sulla natura giuridica dei beni vicinali di Pontebba Nuova. In *Comunioni familiari montane*, eds. E. Romagnoli, C. Trebeschi, A. Germanò, and A. Trebeschi, Vol. II, Atti del seminario di studio “Per una proprietà collettiva moderna”, 343–382. Firenze: Istituto di Diritto agrario comparato.
- Murdoch, J. 2000. Networks – a New Paradigm of Rural Development?. *Journal of Rural Studies* 16:407–419.
- Murtinho, F., H. Eakin, D. López-Carr, and T. M. Hayes. 2013. Does External Funding Help Adaptation? Evidence from Community-Based Water Management in the Colombian Andes. *Environmental Management* 52(5):1103–1114.
- Neumeier, S. 2012. Why do Social Innovations in Rural Development Matter and Should They be Considered More Seriously in Rural Development Research? – Proposal for a Stronger Focus on Social Innovations in Rural Development Research. *Sociologia Ruralis* 52:48–69.
- OECD. 1998. *Co-operative Approaches to Sustainable Agriculture*. Paris: OECD Publications.
- OECD. 2001. *Multifunctionality Towards an Analytical Framework*. Paris: OECD Publications.
- OECD. 2006. *The New Rural Paradigm. Policies and Governance*. Paris: OECD Publications.

- Ostrom, E. 1986. A Method of Institutional Analysis. In *Guidance, Control, and Evaluation in the Public Sector*, eds. F. X. Kaufmann, G. Majone, and E. Ostrom, 459–475. New York: Walter de Gruyter.
- Ostrom, E. 1990. *Governing the Commons: The Evolutions of Institutions for Collective Actions*. New York: Cambridge University Press.
- Ostrom, E. 1994. Constituting Social Capital and Collective Action. *Journal of Theoretical Politics* 6:527–562.
- Ostrom, E. 1999. Social Capital: A Fad or a Fundamental Concept. In *Social Capital: A Multifaceted Perspective*, eds. P. Dasgupta and I. Serageldin. Washington DC: World Bank.
- Ostrom, E. 2005. *Understanding Institutional Diversity*. Princeton: University Press.
- Ostrom, E. 2007. Institutional Rational Choice: An Assessment of the Institutional Analysis and Development Framework. In *Theories of the Policy Process*, ed. P. A. Sabatier, 21–64. Westview, CO: Press Boulder.
- Ostrom, E. 2011. Background on the Institutional Analysis and Development Framework. *The Policy Studies Journal* 39(1):7–27.
- Ostrom, E. and C. Hesse, eds. 2007. *Understanding Knowledge as a Commons. From Theory to Practice*. Cambridge, MA: MIT Press.
- Ostrom, E. and T. K. Ahn. 2009. The Meaning of Social Capital and its Link to Collective Action. In *Handbook of Social Capital*, eds. G. T. Svendsen and G. L. Svendsen. Northampton, MA: Edward Elgar.
- Ostrom, E., L. Schroeder, and S. Wynne. 1990. *Institutional Incentives and Rural Infrastructure Sustainability*. Washington DC: U. S. Agency for International Development.
- Pieraccini, M. 2015. Democratic Legitimacy and New Commons: Examples from English Protected Areas. *International Journal of the Commons* 9(2):552–572.
- Putnam, R. D., R. Leonardi, and R. Y. Nanetti. 1993. *Making Democracy Work*. Princeton: Princeton University Press.
- Raffestin, C. 1981. *Pour une géographie du pouvoir*. Paris: Les Librairies Thecniques.
- Sachs, I. 1984. *Développer les champs de planification*. Paris: Université Coopérative Internationale.
- Shaw, L., M. Lubel, and C. Ohmart. 2011. The Evolution of Local Partnerships for Sustainable Agriculture. *Society & Natural Resources* 24:1078–1095.
- Steins, N. A. and V. M. Edwards. 1999. Platforms for Collective Action in Multiple-use Common-pool Resources. *Agriculture and Human Values* 16:241–255.
- van der Ploeg, J. D. and D. Roep. 2003. Multifunctionality and Rural Development: the Actual Situation in Europe. In *Multifunctional Agriculture. A New Paradigm for European Agriculture and Rural Development*, eds. G. Huylenbroeck and G. Durand. Aldershot: Ashgate.
- Wilson, G. 2010. Multifunctional ‘Quality’ and Rural Community Resilience. *Transactions of the Institute of British Geographers* 35(3):364–381.