

## Chapter 2

# The Role of Collective Action

**Abstract** This chapter provides an overview of the definitions, role and characteristics of collective action, with a particular focus on the main strategies and dynamics regarding its role in providing public goods through agriculture. It is argued that a very relevant issue to be considered when analyzing the dynamics of collective action is what type of organization develops and manages such action, and this chapter provides a detailed description of the main institutional arrangements that may favour the development of grass roots collective action in rural areas. The first part of the chapter shows that some innovative institutional arrangements based on mixed private-public solutions, such as *co-production* and *co-management*, may represent effective territorial strategies to promote and support collective action related to the management of natural resources. The second part of the chapter describes the relevance of social capital in implementing those institutional arrangements in rural areas as well as the necessary shift towards a new structure of the agricultural knowledge and innovation systems in agriculture. The Agricultural Innovation System (AIS) should be re-configured in order to favor the implementation of collective strategies aimed at providing public goods through agriculture.

**Keywords** Collective action · Co-management · Co-production · Social capital · Agricultural Innovation System

### 2.1 Collective Action: Definition and Characteristics

During the last few decades an increasing amount of literature on collective action and natural resources has emerged, with a great emphasis on the conceptualization of collective action and on the analytical framework necessary to study it (Olson 1965; Wade 1987; Ostrom 1990).

Marshall (1998) defined collective action as ‘the action taken by a group (either directly or on its behalf through an organization) in pursuit of members’ perceived shared interests’. As observed by Meinzen-Dick et al. (2004), the more specific and varied definitions which have been added later have in common the following features: the involvement of a group of people, shared interests, common and voluntary actions to pursue those shared interests.

A very relevant issue to consider when analyzing the dynamics of collective action is what type of organization has developed and/or supported such action. In many cases the outcomes of the collective action are highly dependent on the type of organizations involved, but also to the institutional arrangements which are in place at the local level. In the agricultural realm, for example, it is necessary to distinguish whether the collective action is developed by an organization directly controlled by farmers or if it is controlled and supported by a national/regional governmental authority.

From this perspective, Davies et al. (2004) distinguish two types of collective action: (i) *cooperation*: bottom-up, farmer-to-farmer collective action and (ii) *coordination*: top-down, agency-led collective action. While some bottom-up collective actions may receive government support, others may be carried out without government support. Similarly, some top-down collective actions are promoted by government policies but do not receive any support, while other collective actions receive support by local and/or government (OECD 2013).

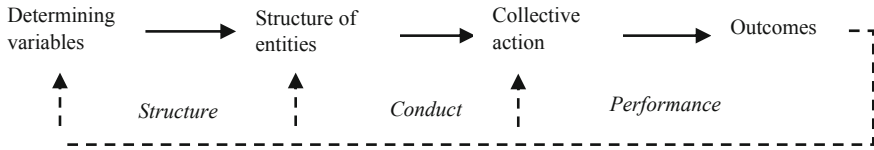
This categorization implies the involvement of different levels of government (either central or local), which may provide the most effective support to the different strategies. From this perspective, the literature on collective actions and institutional arrangements for managing common pool resources has increasingly recognized the dynamic dimensions of institutions, which are context dependent and evolve over time. It is therefore necessary to understand how individuals interpret and respond to the different institutional arrangements in different contexts.

More specifically, a very important challenge for the analysis of collective action refers to the understanding of the role of formal and informal organizations that coordinate and support such actions, since in some cases these organizations exist only on paper and collective action occurs spontaneously, while in other cases institutions may play a vital role in creating and coordinating local action for a shared interest (Meinzen-Dick et al. 2004).

Although collective action is often associated with activities carried out by formal organizations, according to Ostrom (2004), more attention should be paid to informal collective action, where local networks or local groups of people organize and coordinate local action in order to achieve specific short-term purposes.

Since institutions play a crucial role regarding the development and the success of collective action, in the context of this book, particular attention is given to the implications of the institutionalizations of the more spontaneous and bottom-up collective actions. Indeed, as emphasized by Meinzen-Dick et al. (2004), any kind of collective action for routine maintenance will likely become institutionalized or integrated into mainstream policy frameworks (in the case of the EU agricultural sector mainly into the CAP) and while this institutionalization has the potential of reducing the transaction costs of negotiation, on the other hand the more institutionalized collective action, the less adaptable and flexible become.

The same authors argue that all the factors which influence the structure of groups and their organizations are relevant because they influence their conduct and then their outcomes. Indeed, neither the institutions involved nor the collective action itself are the ultimate objective; performance outcomes are important as well. As shown in



**Fig. 2.1** Structure, conduct and performance of collective action. (Source: Meinzen-Dick et al. (2004))

Fig. 2.1, the many variables of interests present in collective actions usually determine feedbacks and co-movements that are likely to be very influential in determining the performance of collective action.

These feedbacks and co-movements are due to the fact that usually collective action is a dynamic process and, for this reason, it is also very difficult to measure directly, also because its performance relates to institutional settings and social relationships and it may vary over time, cultures and communities.

In order to analyze the performance of collective action related to natural resources and, more generally, to public and collective goods, some scholars have identified the substantive factors that it is necessary to take into account (Wade 1988; Ostrom 1990; Baland and Platteau 1996).

These factors have been grouped by Agrawal (2001) in a set of four basic categories:

1. Resource system characteristics;
2. Group characteristics;
3. Institutional arrangements;
4. External environment.

This conceptual framework, which has been used also by Davies et al. (2004) and by OECD (2013), allows the exploration of the key factors for successful collective action, as well as the barriers to be addressed in order to produce larger benefits through collective and territorial strategies.

According to this framework, collective action is highly affected by (1) the characteristics of the natural resources (type of goods) involved and on the knowledge and predictability of such resources, since information and communication on natural resources, for example related to technical requirements, are crucial issues to implement successful collective action. The type of knowledge usually includes both local knowledge and scientific expertise, and a successful integration of these two types of knowledge in many cases is a key issue to enable communities to use natural resources in a sustainable way (Agrawal 2001; Pretty 2003).

This factor is also related to (2) the characteristics of the group involved, which should have an appropriate size and homogeneity and, above all, it should allow the participants involved in the collective actions to increase their social relationships. These relationships, which may be synthesized through the concept of ‘social capital’, include trust, norms, reciprocity, obligations and expectations, values and attitudes,

culture, information and knowledge, formal groups/associations, institutions, rules and sanctions (Davies et al. 2004).

The success of collective action is also determined by (3) the involved institutional arrangements which, according to the main studies on the topic (Ostrom 1990; Wade 1988), should involve on one side, locally devised and simple rules and, on the other side, they should rely on effective monitoring and sanction systems. In addition to the rules implemented, the success of local strategies is also linked to the ‘thickness’ of local institutions, which may be able to generate public objectives from economic activities. ‘Institutional thickness’ in a given territory is linked to the combination of ‘human capital’ (knowledge resources), ‘social capital’ (trust, reciprocity and other social relations) and ‘political capital’ (capacity for collective action) (Mantino 2010).

Finally, external forces and authorities (4) also affect collective action to a large extent, and these forces may be interpreted as both financial and non-financial support. Financial support is particularly relevant at the initial stage of the collective action, since it usually involves higher transaction costs compared to individual activities (Mills et al. 2010). Conversely, non-financial support is related to the need of governments to play a pro-active role in setting basic rights, guidelines, rules (also with penalties and sanctions) and public objectives which may encourage collective action (Ayer 1997).

## 2.2 Barriers and Benefits of Collective Action

The role of collective action is increasingly analyzed also in the context of agriculture and rural development. The majority of studies and analyses are related to collective marketing initiatives, since a collective and coordinated approach of farmers in the food supply chain may have positive economic effects, by increasing the economies of scale and by reducing transaction costs.

At the same time, as it will be further discussed in the following chapters, it is increasingly recognized that the collective action of farmers and of other rural stakeholders may also play an important role in delivering public goods, non-commodity outputs and environmental services (Polman et al. 2010).

In the environmental realm, a joint action can be undertaken by farmers’ organizations, farmers’ associations or by an informal group of farmers for many reasons, such as reducing the transaction costs to collect information on innovative (and more sustainable) production practices, to comply with new legislation, to take market opportunities (i.e. to negotiate a premium price with the large distribution channels) or to monitor the jointness between commodity and non-commodity output (Van Huylenbroeck 2008).

As demonstrated by Uetake (2012) in the case studies from New Zealand, in many cases the provision of agri-environmental public goods through collective action also allows obtaining larger benefits, which were identified in the following areas: scale merits, sharing knowledge and increasing capacity and tackling local issues.

Nevertheless, successful initiatives must overcome the most common barriers to collective action, which are traditionally identified in the problem of free riding and in higher transaction costs.

With regard to the benefits of collective action, the issue of scale is particularly important, since collective action may have ecological scale merits and may improve the economy of scale and scope. As shown by some studies (Davies et al. 2004; Mills et al. 2010), since environmental public goods such as biodiversity and landscape in many cases cannot be provided by single farmers, collective action allows the addressing of the problem of public goods provision at the geographically and ecologically appropriate scale. In addition, by mobilizing territorial resources in a coordinated way, collective action may reduce the costs of public goods provision (economy of scale) and may improve the co-ordination mechanisms for the joint provision of several public goods (economy of scope).

As will be further discussed in Sect. 2.5, another of the key benefits of collective action is the possibility of sharing knowledge and learning for the stakeholders who take place in the collective initiatives. In many cases a cooperation approach relies heavily on the local knowledge of stakeholders and on the possibilities to integrate this knowledge into the decision making process. Thus, collective action increases the credibility and legitimacy of decision-making, but also allows the collecting and sharing of information at lower costs compared to the individual approaches.

The other important benefit of collective action is the possibility of tackling efficiently local issues. In many cases central governments have increasing difficulties in tackling local issues and cannot find a viable solution for local problems, while through collective action it is possible to implement strategies tailored to local problems, since it allows greater flexibility, responsiveness and local relevance (Davies et al. 2004). As will be further discussed in the case studies described in the book, in many cases civil society associations are the typical initiators of innovative development steps and their involvement usually contributes to a great extent to the success of such initiatives.

Together with the aforementioned benefits, the literature acknowledges that free riding and higher transaction costs may represent important barriers to collective action.

Free riding as one of the main barriers to collective action was already identified in the seminal work of Olson (1965), who showed the way in which collective action often involves some individuals who tend not to contribute to group activities because they benefit from other member's activities. This problem is particularly relevant when collective action takes place with the objective of public goods provision, since the benefits of public goods, which are non-rival and non-excludable, cannot be limited to the group members of collective action. At the same time, as it will be demonstrated in the following chapters, in grass roots collective actions traditional incentive mechanisms such as trust, solidarity reciprocity and reputation may be determinant factors in the reduction of free riding.

With regard to the transaction cost problem, the literature clearly acknowledges that, especially in the initial phase of their implementation, collective initiatives may have higher transaction costs compared to individual actions (Ostrom 1990;

**Table 2.1** Transaction costs in collective action. (Source: Singleton and Taylor (1992))

Transaction costs	Examples
Search costs incurred in identifying possibilities for mutual gains	Identification of funding sources
	Identification of relevant stakeholders
Bargaining costs associated with negotiating an agreement	Cost of gathering information
	Time spent at meetings
Monitoring and enforcement costs involved in making sure all parties keep to the agreement	Effort expended in verbal and written communications
	Employment of external monitor
	Time and effort spent monitoring others informally

Davies et al. 2004). This has important implications when implementing policies to support collective strategies for public goods, since the collective action usually involves higher costs related to search costs (incurred in the identification of possibilities for mutual gains), bargaining costs (associated with negotiation and agreement) and monitoring and enforcement costs (Singleton and Taylor 1992; Table 2.1).

However, while some additional costs are inevitable in order to make collective action works, in many cases the benefits of collective action cover these costs (Uetake 2012) because of the economy of scale and scope (Hodge and McNally 2000; Davies et al. 2004). Finally, as will be further discussed in the following sections, the benefits of collective action may be maximized when appropriate institutional arrangements are in place and where the role of social capital is enhanced as result of the effects of social networks, trust and reciprocity among group members.

## 2.3 Institutional Arrangements

A very relevant issue to address when assessing the dynamics of collective action in the context of agriculture is what type of organization is involved, since the dynamics related to the drivers, processes and outcome may differ to a large extent; for example, between an organization controlled directly by farmers or controlled by a national/regional government.

In the context of western countries, especially in the European Union, the public intervention in agriculture is quite centralized, and central governments still play a very crucial role. Although during the last decades important efforts to increase the decentralization and to promote local defined rural and agricultural policies were observed, it is evident that, especially at the EU level, the agriculture is a highly subsidized and the economic performance of the sector is highly dependent on public support, that is usually implemented through rather top-down policy tools (see sect. 1.3).

Conversely, the concept of collective action itself suggests the need to look beyond the simple top-down management—that in the agricultural sector is usually based on state intervention—but also to look at the public/private partnerships and those innovative institutional arrangements which involve different levels. Those multi-stakeholder arrangements are usually characterized by strong horizontal linkages among user groups at the same level of organization, but also by vertical linkages between different levels, for example between local stakeholders and central governmental agencies (Berkes 2009, p. 1693).

As will be further discussed in next few chapters, this multi-stakeholder approach is also very relevant to stimulate collective action related to provision and protection of public goods (increase of positive externalities or decrease of negative externalities). Indeed, the effectiveness of the strategies for the provision of public goods and services is usually related to the involvement of a broader range of rural stakeholders that act together by sharing different knowledge, expertise and commitment for common goals.

As highlighted by Gatzweiler (2006, p. 300), farmers cannot be expected to be the sole carrier of the costs for providing public goods and services and the government cannot be the sole authority in the allocation of public funding, but in many cases it is necessary to seek ways towards mixed solutions. From this point of view, as discussed by many authors (Hagedorn et al. 2002; Van Huylenbroeck et al. 2009), the solution is not as easy as leaving the allocation problem of private goods to the market and that of public goods to the government, but it is usually necessary to explore innovative solutions, based on mixed public-private arrangements which could ensure an effective provision of public goods through collective and inclusive strategies. Thus, it may be argued that collective action for public goods through agriculture does not involve merely larger areas owned by many farmers, but also innovative institutional arrangements and coordinating mechanisms implemented at the right scale. For example, in the case of public footpaths created for connecting across individual farms, landholders need to co-ordinate decisions in order to create networks of paths that can offer a worthwhile recreation experience. Thus, in many cases it is necessary to overcome the traditional environmental contracts represented by a direct link between an agency and a land user. Other arrangements may be more effective, by revealing demand within a market context, by establishing incentives for landholders to co-ordinate their actions and by reducing the requirements for public expenditure (Hodge 2001).

Some innovative institutional arrangements that may represent the basis for collective action regarding the provision of agri-environmental public goods have been conceptualized through the definitions of *co-management* and *co-production*.

*Co-management*, defined as the sharing of power and responsibility between the government and the local resource users is a hybrid regime combining centralized and decentralized state and community institutions (Berkes 2009, p. 1692). More particularly, co-management was defined by Singleton (1998, p. 7) as a ‘governance system . . . that combine[s] state control with local, decentralized decision-making and accountability which, ideally, combine[s] the strengths and mitigate[s] the weakness of each’. This institutional arrangement is usually combined with learning-based

approaches, since it may be considered a knowledge partnership where different levels of organizations have comparative advantages in generating and mobilizing the knowledge acquired at different scales.

As described by Singleton (2002, p. 3), the appeal of co-management is related to both efficiency and legitimacy. The efficiency is related to the availability of higher quality and less costly information, since in co-management arrangements local knowledge is usually combined with scientific knowledge produced by state agency scientists. The integration of these two types of knowledge may result in producing a more complete, finely-tuned set of information. At the same time, monitoring and enforcement can be more effective by virtue of being carried out by local people involved in the collective action. Similarly, the legitimacy of the system is enhanced by the fact that user-groups and community members are involved, which may result in people being more willing to comply voluntarily with the specific requirements in place.

While co-management refers to an arrangement in which private organizations or associations produce services in collaboration with the state, *co-production* refers to an arrangement where, at least in part, citizens produce their own services. Co-production has been defined by Ostrom (1996, p. 1073) as ‘the process through which inputs used to produce a good or services are contributed [to] by individuals who are not “in” the same organization [ . . . ]. Co-production implies that citizens can play an active role in producing public goods and services of consequence to them’.

The co-production concept, analyzed mainly by American scholars in public administration studies, was born out of an acknowledgement that production of a service, as contrasted to a good, was difficult without the active participation of those who are supposed to receive the service. Thus, the term co-production describes the potential synergy and collaboration that could occur between the provider of services (usually the government) and the users of services (usually the citizens), by showing different and possible roles of individuals or groups in the production of such services.

As shown by Ostrom (1996), reciprocity is an important requisite to make co-production advantageous. Indeed the co-production process implies the building of credible commitment of the participants to one another and clear and enforceable contracts between government agencies and citizens which enhance that credibility.

The added values of these decentralized and hybrid regimes is due to the fact that when implementing a co-management of co-production approach, different actors need to work and think together, and deliberate to generate new knowledge or make sense of knowledge from different sources (Berkes 2009, p. 1695). As argued by Davidson-Hunt and O’Flaherty (2007, p. 293): ‘working from the premise that knowledge is a dynamic process—that knowledge is contingent upon being formed, validated and adapted to changing circumstances—opens up the possibility . . . to establish relationships with indigenous peoples as co-producers of locally relevant knowledge’.

Finally, it may be argued that institutional arrangements based on co-production and on co-management imply a shift from a linear approach to policy design towards a policy cycle where rural development strategies are designed and implemented



according to local needs, where the knowledge of local communities play a pivotal role. Indeed, the conventional approach to public goods provision usually assumes a greater amount of knowledge within the government than is actually available and, by failing to acknowledge society's learning abilities, usually makes insufficient use of social dynamics for realizing public objectives (Hajer 2011, p. 26). On the opposite side, an approach based on co-management and co-production implies a renewed role for government, which should favour experiments, innovation and learning processes, since government is responsible for setting public objectives but there is also a need for an increasing role of society, which is the carrier of required change. At the same time, as pointed out by Enengel et al. (2011, p. 1266) these innovative institutional arrangements are processes of learning by doing from previous and ongoing experiences, and must be critically analyzed in order to derive recommendations for future practices.

## 2.4 The Role of Social Capital

Many studies have pointed out the importance of social capital for collective action (Pretty 2003; Rudd 2000; Ostrom 2000).

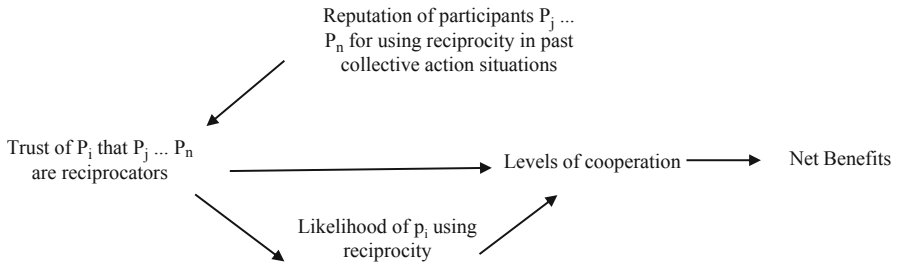
Social capital has been defined by Bourdieu (1986, p. 251) as 'the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition'. Similarly, Putnam et al. (1993) define social capital as 'features of social organizations, such as networks, norms and trust that facilitate coordination and cooperation for mutual benefits'. The other definitions which have been added later have in common a strong focus on the 'relations' and on the benefits, such as mutual cooperation or various other resources, that result from these relations (Dahal and Adhikari 2008).

As argued by Dahal and Adhikari (2008, p. 3), the studies on collective action have widely used the definition of Putnam et al. (1993), since: (i) social capital in collective action is usually related to meso and collective units, such as associations, communities and regions; (ii) social capital is presented as a solution of the barriers of collective action and (iii) the social capital framework is applied to the study of the performance of institutions, such as regional governments.

An approach based on social capital and social norms may be effectively applied to the collective management of environmental resources, since it can complement the traditional public policy approaches based on regulation, taxation and pricing to address environmental problems (World Bank 2009).

In analyzing the role of social capital and the collective management of resources, Pretty (2003, p. 1913) emphasizes the importance of the following four features: (i) relation of trust; (ii) reciprocity and exchanges; (iii) common rules, norms and sanctions and (iv) connectedness in networks and groups.

Relations of trust (i) are an important prerequisite to work-cooperatively, and this is particularly true in the case of collective action, where mutual trust plays



**Fig. 2.2** Relationships between trust, reputation, reciprocity and collective action. (Source: Ostrom (2007))

a central role in reducing transaction costs between people, by avoiding the need to monitor others and thereby save money. Nevertheless, as argued by Baland and Platteau (1996), trust is easier to establish in societies and organizations with long and established traditions of co-operation.

Trust is strongly related to reputation. Indeed, when paying attention to reputation, people are more bounded by mutual obligation and reciprocity and, as observed by Wade (1988), in many cases collective action increases the chances to be successful when people are concerned about their social reputation.

Similarly, Ostrom (2007) has observed that participants involved in collective action in many cases decide to trust other participants on the basis of their reputation in past collective action situations. According to Ostrom, at the core of successful collective action are the links between the trust that one participant ( $P_i$ ) has in the others ( $P_i, \dots, P_n$ ) involved in a collective action situation, the investment others make in trustworthy reputations, and the probability of all participants using reciprocity norms. As shown in Fig. 2.2, the joint action of reputation, trust and reciprocity is very important, since these factors positively reinforce each other and this results in increasing cooperation and, as a consequence, in increasing the net benefits of collective action.

Cooperation may also be promoted by (ii) reciprocity and exchange, since reciprocity increases trust and contributes to the development of long-term obligations between people, which helps in achieving positive environmental outcomes (Pretty 2003). This reciprocity must be based on trust, since trust ‘lubricates co-operation’ between people and, by reducing transaction costs, may liberate important financial resources (Pretty and Ward 2001).

Moreover, successful collective action is also dependent on (iii) common rules, norms, and sanctions which must be set up according to an inclusive criterion in order to ensure that group interests are in line with those of individuals and should be effective in changing behaviours. These ‘rules of the game’ should be also proposed and recognized as much as possible by people participating in collective action, in order to be effective in giving individuals the confidence to invest in the collective goods.

Finally, with regard to the (iv) connectedness in networks and groups, it is possible to recognize three types of connectedness: bonding, bridging and linking (Pretty 2003):

- *Bonding* describes the links from membership of groups of similar people with strong ties, such as networks of friends, family and associates;
- *Bridging* from membership of more diverse associations, with weaker links between individuals, such as interests groups or social and leisure clubs;
- *Linking* describes connections with people in position of power, and is good for accessing support from formal institutions.

In the context of this book, in analyzing the role of social capital for the success of collective action, particular attention is given to all these aspects of social capital regarding two types of interactions: the interactions within the farmers' communities and the interactions between farmers and the other local rural stakeholders.

Indeed, farmers' decision making processes are generally strongly influenced by the judgments of their peers, and this emphasizes the need to explore the individual interests which allow farmers to interact with each other, in order to understand the social networks, trust and norms of reciprocity which are in place in the farming communities under study. As shown by Carolan (2006), the acknowledgement of farmers' knowledge and the increasing interactions amongst peers may allow individuals to develop 'interactional expertise in bringing together knowledge produced in different contexts'.

At the same time, the study of collective action implies a territorial and integrated approach, where it is also important to analyze the interactions of farmers with wider networks, which may involve:

- Other farming communities, also involving forms of cooperation both at local and at extra-local levels;
- Institutions (local and regional administration, public bodies and independent institutions);
- Other organizations (NGOs, environmental organizations, political groups);
- Citizens and consumers (local inhabitants, tourists, consumers, cultural associations);
- Technical services and experts who play a role in increasing the spread of knowledge and innovation amongst farmers.

Even though there is increasing evidence that a high level of social capital is usually a central requisite for a collective effective provision/preservation of agri-environmental goods, it must be stressed that social capital 'is not easy to find, see and measure as is physical capital' (Ostrom 2000, p. 188).

Moreover, from a public goods perspective, the main challenges are translating social capital into norms or values that discourage behaviours which cause externalities, and by strengthening community ties so that sanctions may be provided against those who transgress (DEFRA 2008, p. 17).

As will be discussed in the next section, this important challenge is strongly related to the role of learning and innovation in agriculture. Advisory systems, extension, diffusion of innovation and training have a crucial role in shaping the attitudes and motivation of farmers and in determining important drivers for the success of collective action.

## 2.5 A New Approach to Learning and Innovation

When successful collective actions for public goods take place, the social dynamics enhance the capacities of farmers, since collective action makes it possible for participants to collect and share knowledge and information, also with other rural stakeholders and landholders that together utilize their knowledge, skills and institutions (Hodge and Reader 2007).

However, the need of favouring the joint production of knowledge and joint learning are very increasingly recognized, more generally, as one of the main challenges for the Agricultural Knowledge and Innovation Systems. In a recent EU report on the topic, for example, the authors recommend building on models of joint knowledge-production, spanning the boundaries between knowledge generators and users, since expertise is derived from multiple sources (academics, businesses, land managers and the society) and each actor can make a valuable contribution to the knowledge base (EU SCAR 2012).

The formal Agricultural Knowledge System (AKS), based on the triangle of agricultural research, education and extension, has been the dominant paradigm for agricultural extensions in the 1970s and 1980s. This system, rooted on the so called 'knowledge transfer paradigm', was based on the dissemination of information and technical solutions amongst farmers, with the objective of diffusing the adoption of predetermined practices.

This paradigm is based on a strong confidence in scientific progress, whereby the innovations are created by the scientific community and the new technologies are 'transferred' to farmers who 'adopt' them, through a top-down linear process, from research to farmers (Knickel et al. 2009).

This approach has been strongly criticized, and criticisms may be grouped under three main concerns: (i) it is not appropriate for the modern multifunctional agriculture; (ii) it does not reflect the empirical evidence of how farmers use information and (iii) it does not take into adequate consideration the multiple sources from which knowledge is generated, and the other influences of farmers, notably also by the information received by other farmers (Blackstock et al. 2010).

Here it is particularly relevant to highlight the limits of the traditional AKS model in addressing the provision of agri-environmental public goods through agriculture. Indeed, the mission of AKS was mainly increasing the productivity of agriculture, usually relatively to a narrow range of crops. Conversely, the changing scenario of the global production system, involving the diversification on the demand on agriculture, has shown in quite a clear way the incoherence of the dominant production system and

the related accompanying AKS: an increasing gap between private and public goals was observed with a consequent emergency of different scientific and technological paradigms (Brunori et al. 2011).

For these reasons, during the 1990s and 2000s an alternative ‘human development’ approach on innovation was developed, which emphasizes the need for farmers to develop their own solutions to the problems, where the role of extensions is to facilitate interaction, learning and innovation rather than persuading farmers on the practices to be adopted. Thus, the agricultural innovation literature has developed the concept of Agriculture Innovation Systems (AIS) (Spielman and Birner 2008), which were defined as ‘networks of organizations, enterprises, and individuals focused on bringing new products, new processes, and new forms of organization into economic use, together with the institutions and policies that affect the way different agents interact, share, access, exchange and use knowledge’ (World Bank 2006).

In order to respond to the increasing complexity of the primary sector and to the need of increasing the provision of public goods, in some countries innovation processes previously based on strong hierarchical patterns, have been increasingly substituted by systems structured as networks. A network-like structure of innovation patterns gives more flexibility and allows for the primary sector to respond to the emerging consumers demand as well as the new policies implemented. Indeed, while the AKS uni-linear approach, by focusing on the persuasion of individuals, fails to explain the decision-making processes within specific social systems and the related collective behavioral changes, the new AIS paradigm emphasizes the process of networking and interactive learning among a heterogeneous set of actors, such as farmers, input industries, processors, traders, researchers, extensionists, government officials, and civil society organizations.

From this perspective, it may be argued that the provision of agri-environmental public goods through collective action is particularly challenging also from a knowledge and innovation perspective. Indeed, the new paradigm, based on AIS, in order to be effective in facilitating the collective provision of public goods, must create new spaces for social and institutional innovation, by linking together different disciplines, different administrative and policy spheres and encouraging new learning processes.

In addition, moving from an approach based on knowledge transfer’ towards processes that facilitate ‘knowledge exchanges’ involves recognizing the crucial role of local and tacit knowledge, where an important feature is social innovation in multi-stakeholder collective practices and knowledge production (Schmid et al. 2012).

The central issue of new approaches on innovation (AIS) is how farmers, scientists and advisors can co-create, collectively, new meanings and new codes for sustainable practices. This process, which involves a transformation of values, norms, rules and powers amongst the actors, has been conceptualized as ‘social learning’ (Röling and Wagemakers 1998). Social learning is defined as ‘learning that occurs when people engage one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action’ (Schusler et al. 2003, p. 311). Thus, social learning may be considered an iterative process of knowledge co-production amongst stakeholders brought into interaction: when stakeholders

become aware of how other stakeholders understand reality and how these ‘understandings’ relate to practical experiences and defended interests (Steyaert et al. 2007, p. 540).

As argued by Blackstock et al. (2010, p. 5637), within differentiated farming cultures there are different individual and group identities, which influence and interpret knowledge and the consequent behaviour changes in different ways. Therefore, understanding and influencing behaviour is a complex and multi-faceted issue, also related to issues of power and politics within farming cultures and between these groups and the wider policy and political settings. An understanding of relations within and outside the actors involved in the collective action, as well as the power dynamics, where different interests or influences are expressed, is crucial to fully understanding the process of knowledge exchanges and the collective decision making processes. Thus, it may be argued that the achievement of new environmental objectives for agriculture involves significant changes in farmer’s practices and it is related to two dimensions: a technical change but also a more structural shift regarding their professional identity and their role in the management of the territory (Deuffic and Candau 2006, p. 565).

In order to provide successful technological solutions for sustainable agriculture, such as no-tillage, integrated pest management and organic farming, such solutions need to be integrated with broad cultural, social, political and economic transformations (Schneider et al. 2009). The new AIS approach must then involve a process of co-production of knowledge between academic and non-academic actors and above all, a process of knowledge co-production between farmers, experts and scientists.

As emphasized by Tarnoczi and Berkes (2010), information from government and producer organizations can be very important for the co-production of knowledge, and especially producer organizations may undertake bridge building, by linking policy makers to farmers, also by including local knowledge and local experiences when implementing extension strategies at the farm-level. Indeed the new AIS approach, based on the principles of empowerment and participation, emphasizes the key role of the non-expert form of knowledge and the role of extensions in facilitating collective processes. As highlighted in the EU SCAR position paper (2012, p. 9), innovation is a risky business and benefits from the exchange of ideas, learning and innovation networks have proven to be an adequate vehicle for empowering groups of farmers to investigate new options to make their business more viable and sustainable.

The case studies analyzed in this book (chap. 4 and 5) show how this alternative approach to learning and innovation, based on the AIS principles, has been successfully experimented in two grass roots collective actions, by showing that this innovative system, based on co-management, co-production of knowledge and social learning, may represent an effective approach for the provision of public goods through agriculture.

## References

- Agrawal A (2001) Common property institutions and sustainable governance of resources. *World Devel* 29(10):1649–1672
- Ayer HW (1997) Grass roots collective action: agricultural opportunities. *J Agric Resource Econ* 22(1):1–11
- Baland JM, Platteau JP (1996) Halting degradation of natural resources: is there a role for rural communities? Cambridge University Press, Cambridge
- Berkes F (2009) Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *J Environ Manage* 90(5):1692–1702
- Blackstock KL, Ingram J, Burton R, Brown KM, Slee B (2010) Understanding and influencing behaviour change by farmers to improve water quality. *Sci Total Environ* 408(23):5631–5638
- Bourdieu P (1986) Forms of capital. In: Richards JC (ed) *Handbook of theory and research for the sociology of education*. Greenwood Press, New York
- Brunori G, Berti G, Klerkx L, Tisenkopfs T, Roep D, Moschitz H, Home R (2011) Learning and Innovation Networks for Sustainable Agriculture. WP2—Conceptual Framework, SOLINSA EU project
- Carolan MS (2006) Social change and the adoption and adaptation of knowledge claims: whose truth do you trust in regard to sustainable agriculture? *Agric Human Values* 23(3):325–339
- Dahal GR, Adhikari KP (2008) Bridging, linking, and bonding social capital in collective action. Capri Working paper No. 79
- Davidson-Hunt IJ, O' Flaherty RM (2007) Researchers, indigenous peoples and place-based learning communities. *Soc Natur Resour* 20(4):291–305
- Davies B, Blackstock K, Brown K, Shannon P (2004) Challenges in creating local agri-environmental cooperation action amongst farmers and other stakeholders. The Macaulay Institute, Aberdeen
- DEFRA (2008) Understanding Behaviours in a Farming Context: Bringing Theoretical and Applied Evidence together from Across Defra and Highlighting Policy Relevance and Implications for Future Research, November. Defra Agricultural Change and Environment Observatory Discussion Paper
- Deuffic P, Candau J (2006) Farming and landscape management: how French farmers are coping with the ecologization of their activities. *J Agric Environ Ethics* 19(6):563–585
- Enengel B, Penker M, Muhar A, Williams R (2011) Benefits, efforts and risks of participants in landscape co-management: an analytical framework. *J Environ Manage* 92(4):1256–1267
- EU SCAR (2012) Agricultural Knowledge and Innovation Systems in Transition: a Reflection Paper. [http://ec.europa.eu/research/agriculture/scar/pdf/akis\\_web.pdf](http://ec.europa.eu/research/agriculture/scar/pdf/akis_web.pdf). Accessed 13 Dec 2012
- Gatzweiler F (2006) Organizing a public ecosystem service economy for sustaining biodiversity. *Ecolog Econ* 59(3):296–304
- Hagedorn K, Artz K, Peters U (2002) Institutional arrangements for environmental co-operatives: a conceptual framework. In: Hagedorn K (ed) *Environmental cooperation and institutional change: theories and policies for European agriculture*. Elgar, Cheltenham
- Hajer M (2011) The energetic society. In search of a governance philosophy for a clean economy. PBL Netherlands Environmental Assessment Agency, The Hague
- Hodge I (2001) Beyond agri-environmental policy: towards an alternative model of rural environmental governance. *Land Use Pol* 18(2):99–111
- Hodge I, McNally S (2000) Wetland restoration, collective action and the role of water management institutions. *Ecolog Econ* 35(1):107–118
- Hodge I, Reader M (2007) Maximising the Provision of Public Goods from Future Agri-environment Schemes. Final Report for Scottish Natural Heritage, Rural Business Unit, Department of Land Economy, University of Cambridge
- Knickel K, Brunori G, Rand S, Proost J (2009) Towards a better conceptual framework for innovation processes in agriculture and rural development: from linear models to systemic approaches. *J Agric Edu Ext* 15(2):131–146

- Mantino F (2010) Understanding delivery mechanisms in EU rural development policies: an institutional approach. Paper presented at the 118th Seminar of the EAAE "Rural Development: governance, policy design and delivery", Ljubljana, Slovenia August 25–27
- Marshall G (1998) A dictionary of sociology. Oxford University Press, New York
- Meinzen-Dick R, Di Gregorio M, McCarthy N (2004) Methods for studying collective action in rural development. *Agric Syst* 82(3):197–214
- Mills J, Gibbon D, Ingram J, Reed M, Short C, Dwyer J (2010) Collective action for effective environmental management and social learning in Wales. Proceedings of the 9th European IFSA Symposium, 4–7 July 2010. Vienna, Austria
- OECD (2013) Providing Agri-environmental Public Goods through Collective Action. OECD Publishing, Paris <http://dx.doi.org/10.1787/9789264197213-en>
- Olson M (1965) The Logic of Collective Action. Harvard University Press, Cambridge
- Ostrom E (1990) Governing the commons: the evolution of institutions for collective action. Cambridge University Press, New York
- Ostrom E (1996) Crossing the great divide: coproduction, synergy, and development. *World Devel* 24(6):1073–1087
- Ostrom E (2000) Social capital: a fad or a fundamental concept? In: Dasgupta P, Sarageldin I (eds) Social capital. A multifaceted perspective. The World Bank, Washington
- Ostrom E (2004) Understanding collective action. In: Meinzen-Dick R, Gregorio M Di (eds) Collective action and property rights for sustainable development, 2020 vision for food, agriculture and the environment. Focus 11, IFPRI International Food Policy Research Institute, Washington
- Ostrom E (2007) Collective Action Theory. In: Boix C, Stokes S (eds) The Oxford handbook of comparative politics. Oxford University Press, Oxford
- Polman N, Poppe KJ, Schans JW van Der, Ploeg JD van der (2010) Nested markets with common pool resources in multifunctional agriculture. *Rivista di Economia Agraria* LXV(2):295–318
- Pretty J (2003) Social capital and the collective management of resources. *Science* 302:1912–1914
- Pretty J, Ward H (2001) Social capital and the environment. *World Devel* 29(2):209–227
- Putnam RD, Leonardi L, Nanetti R (1993) Making democracy work. Civil traditions in modern Italy. Princeton, New Jersey
- Röling NG, Wagemakers MAE (eds) (1998) Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty. Cambridge University Press, Cambridge
- Rudd MA (2000) Live long and prosper: collective action, social capital and social vision. *Ecolog Econ* 34(1):131–144
- Schmid O, Padel S, Levidow L (2012) The bio-economy concept and knowledge base in a public goods and farmer perspective. *Bio base. Appl Econ* 1(1):47–63
- Schneider F, Fry P, Ledermann T, Rist S (2009) Social learning processes in Swiss soil protection—the 'from farmer—to farmer' project'. *Hum Ecol* 37(4):475–489
- Schusler TM, Decker DJ, Pfeffer MJ (2003) Social learning for collaborative natural resource management. *Soc Nat Resour* 16(4):309–326
- Singleton S (1998) Constructing cooperation: the evolution of institutions of comanagement. University of Michigan Press, Ann Arbor
- Singleton S, Taylor M (1992) Common property, collective action and community. *J Theor Polit* 4(3):309–324
- Singleton S (2002) Cooperation or capture? The paradox of co-management and community participation in natural resource management and environmental policy making. *Environ Polit* 9(2):1–21
- Spielman DJ, Birner G (2008) How innovative is your agriculture? using innovation indicators and benchmarks to strengthen national agricultural innovation systems. Agriculture and Rural Development Discussion Paper 41. The World Bank, Washington DC
- Steyaert P, Barzman M, Billaud JP, Brives H, Hubert B, Ollivier G, Roche B (2007) The role of knowledge and research in facilitating social learning among stakeholders in natural resources management in the French Atlantic coastal wetlands. *Environ Sci Pol* 10(6):537–550



- Tarnoczi TJ, Berkes F (2010) Sources of Information for Farmers' Adaptation Practices in Canada's Prairie Agro-Ecosystem. *Climatic Change* 98(1–2):299–305
- Uetake T (2012) Providing agri-environmental public goods through collective action: lessons from New Zealand case studies. Paper presented at the 2012 NZARES Conference, Tahuna Conference Centre—Nelson, New Zealand. August 30–31
- Van Huylenbroeck G (2008) Market and rural policy institutions to stimulate multifunctional food and fibre production. In: Cesaro L, Gatto P, Pettenella D (eds) *The Multifunctional Role of Forests—Policies, Methods and Case Studies*. EFI Proceedings No. 55
- Van Huylenbroeck G, Vuylsteke A, Verbeke W (2009) Public Good Markets: The Possible Role of Hybrid Governance Structures in Institutions for Sustainability. In: Beckmann V, Padmanabhan M (eds) *Institutions and sustainability political economy of agriculture and the environment—essays in honour of Konrad Hagedorn*. Springer Science and Business Media BV
- Wade R (1987) The management of common property resources: collective action as an alternative to privatisation or state regulation. *Cambridge J Econ* 11(2):95–106
- Wade R (1988) *Village republics: economics conditions for collective action in South India*. ICS Press, Oakland
- World Bank (2006) *Enhancing agricultural innovation: how to go beyond the strengthening of research systems*. The World Bank, Washington
- World Bank (2009) *World Development Report 2010: development and climate change*. The World Bank, Washington

Agriculture and Public Goods

The Role of Collective Action

Vanni, F.

2014, XV, 150 p. 26 illus., 12 illus. in color., Hardcover

ISBN: 978-94-007-7456-8