



# Collective Action, Property Rights and Payments for Agrobiodiversity Conservation Services (PACS)

## Key issues

The simultaneous consideration of PES-type approaches of relevance to agrobiodiversity conservation and an exploration of the links with collective action and property rights institutions forms a largely unexplored research area.

In general, PES/PACS schemes may lead to the creation of new institutions of exchange and market arrangements as part of the process of implementing negotiation, transaction, monitoring and enforcement mechanisms aimed at changing the behaviour of farmers so as to achieve the conservation goals of the scheme. At the same time, such external institutions may interact with existing formal and informal community institutions, for example related to historical patterns of property rights, as well as current access rights and management and use practices. Consequently, policy-makers have to account for existing property rights regimes and institutions of collective action related with the management of crop genetic resources and complementary inputs, when designing PACS.

## The Role of Property Rights

Property rights over the genetic information embedded in the crops, the plant itself and complementary inputs (e.g. land and water) are not generally separable from one another and all have an impact on natural resource management and conservation behaviour. While farmers' rights over genetic information could provide them with an incentive to conserve crop genetic resources (CGR), so far such rights have only rarely been assigned to indigenous communities. Accordingly, we do not further consider intellectual property rights but refer instead to the rights associated with accessing, withdrawing, managing, and controlling physical resources such as land and crops. These rights can be formal (*de-jure*) or customary (*de facto*) rights, covering either private or common property.

## The Role of Collective Action

Where individual interests clash with social interests, farmers have often established decentralised systems for the self-governance of their ecosystems based on patterns of collective action. In this context, collective action can be conceptualised as an event, an institution or a process, involving a group of people that act collectively on a voluntary basis in order to reach a common goal. The impure public goods nature of genetic resources has led to a wide range of poor farming communities building on patterns of collective action in order to co-manage CGR and complementary inputs.

An example of such systems of collective action can be found in the traditional crop rotation practices in the *Altiplano*, known as *Aynoka*, *Suyo* or *Manta*. Independent from the existing property right regimes, a group of farmers – sometimes the whole community – decides commonly on the crop species to plant on a certain land area (or on which plots to set aside as fallow land) and each farmer privately manages its own piece of land within the *Aynoka*, *Suyo* or *Manta*. As farmers can freely choose the crop varieties to plant, such fields are often associated with a high range of diversity within the selected crop species. In accordance with these strong collective action institutions, communities have developed complementary ways of co-managing their farming systems, for example through the exchange of labour and agricultural equipment. Furthermore, due to development organisations operating in regions of the *Altiplano* and the significant price increase in quinoa, many farmers have organized themselves to receive technical assistance and participate in quinoa markets. Andean farmers may overcome entry barriers to market participation if they pool their resources and this may enhance the conservation of traditional crop species and varieties, where markets favour agrobiodiversity-related products.

Collective patterns that are more directly linked to agrobiodiversity conservation can be found in the interchange of germplasm among communities and farmers. Yet such processes are rarely institutionalized, as access to seeds is often determined by informal and occasional patterns of collective action built on local customs. Genetic resources used by farmers have often emerged from a collective process of seed saving, seed exchange and seed selection. This applies to Andean communities, as well as for many other indigenous communities around the world. Yet such patterns of collective action can be undermined, when improved varieties are introduced by governments and companies.

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*Project "Payments for Agrobiodiversity Conservation Services (PACS)"*

*Technical Brief 4*

At the same time, with growing market orientation, farmers are more and more driven by self-interest and there is a danger that collective matters increasingly receive less attention. An illustration of this is that the commercialization of quinoa in the Southern *Altiplano* has undermined social cohesion and existing communal norms and customs, as well as related patterns of collective action. The commonly managed *Aynokas*, *Suyos* or *Mantas* have been disappearing from many communities in the Andes. At the same time a significant loss of quinoa genetic resources and severe consequences for farmers' livelihoods can be observed in the *Altiplano*. It may thus be hypothesised that the loss of agrobiodiversity from traditional production systems can be associated with the erosion of such institutions of collective action, and a widening gap between private and social incentives.

### How PACS shape property rights

PES schemes *create new forms of property rights* over the flow of ecosystem services (including those related to agrobiodiversity conservation). The creation of such new forms of property rights is a means to defend or reshape social power structures. In the context of PACS the "provider-gets" principle would appear to be the most socially and environmentally feasible solution to follow i.e. the farmer would be compensated for the provision of a conservation service that contributes to what benefits wider society.

In addition to the creation of these kinds of new property rights, PACS have the potential to *redefine existing property rights*. The conservation contract between the implementing agency and the farmer implicitly acknowledges the farmer's right to use the piece of land under the contract, while excluding other land users from doing so. Therefore, the contract itself might be considered as a certain form of a land title, mostly relevant for contracts running over a longer period. In order to avoid conflict with existing legislation, a necessary precondition for participation in many PES schemes is clearly defined and secure land use rights. Yet there are drawbacks of this approach when applied in developing country contexts, where existing property right regimes are often relatively weak and relevant farmers lack clearly defined and formal rights over the land they use. However, when including farmers not only based on de-jure land use, powerful farmers might take advantage of their ability to obtain conservation contracts in order to oust other farmers from using critical land areas. Given the situation in the Southern *Altiplano*, careful assessment needs to be carried out to ensure that PACS would not further exclude the disadvantaged from using community lands. Consequently, it is very important that PACS take into account existing patterns of resource use complementing or strengthening *de-facto* land use. As PACS are a relatively flexible instrument they might also acknowledge group-titles in circumstances where farmers hold substantial land use rights only in the form of common property.

### How PACS affect collective action

In its widest sense PES-like instruments may be understood as a mechanism to tackle resource management problems through the facilitation of cooperation among different actors. Yet one should be careful not to necessarily interpret any behaviour resulting in the attainment of a common goal as collective action *per se*. Only if the motivation behind the observed patterns of behaviour is driven by a common interest can it be considered that collective action may indeed be occurring.

As PACS are embedded in social systems (including customs, norms, perceptions and preferences) they are likely to interact with existing patterns in the management of CGR, including cooperating

behaviour among farmers. At first glance it might be expected that PACS would result in an increase in the number of farmers assigning some of their land to agrobiodiversity conservation, as the rewards offered would reduce the gap in benefits between non-targeted commercial varieties and targeted traditional varieties - including their non-market values. While the mere involvement of many different farmers in a program cannot be interpreted as a process of collective action, especially if these are mainly driven by self-interest given the material incentives of the program, the rewards offered would also decrease the opportunity costs of conservation, and thus the costs of acting collectively for conserving that which benefits the wider community. Furthermore, PACS may provide an institutional support mechanism capable of bringing together different farmers seeking to achieve the conservation goal in a collective manner.

Rewards may be monetary or non-monetary (e.g. access to certain services or infrastructure) and may be directed at an individual or a community level. As seen during the first stages of the pilot project in Peru and Bolivia, PACS with a community-level focus may be considered to contribute to collective action as farmers have to self-organize themselves for dealing with funding bodies and PACS intermediaries, possibly extending existing production networks and linking community-level organizations with other actors involved in the program implementation. Furthermore, once participating, farmers have to act collectively in order to comply with the conservation service provision contract and thus to receive the rewards, communities may need to consider the application of internal sanction mechanisms in the face of non-compliance by individual farmers. The application of self-regulating mechanisms can contribute to solving social dilemmas and thus enhance existing patterns of collective action.

In addition, PACS can enhance collective action through the formation of social capital in farming communities by introducing formalised patterns of behaviour, as well as by increasing trust and reciprocity through repeated and intensified interaction and exchange between different actors involved in PACS programs. As shown in other contexts, social capital is a conditioning factor in determining the success of PES. PACS might go hand-in-hand with mechanisms providing an enabling environment for the exchange of germplasm among farmers and among communities, as for example through the promotion of community gene banks. In a dynamic context, processes of collective action in seed sharing and exchange might emerge should different farmers contribute to these community gene banks by conserving specific varieties while being able to take advantage of the availability of seeds from other varieties contributed by other farmers. Where community seed banks do not yet exist, the PACS implementing organisation can facilitate the exchange of seeds among farmers from different communities. If farmers sustain these newly built seed exchange networks, new patterns of collective action might evolve in the medium term at a larger - inter-community - scale.

PACS can also initiate processes of *social learning* by defining the conservation goal and formulating solutions. In several community workshops in the *Altiplano*, farmers' awareness of the risks of agrobiodiversity loss and the underlying drivers was increased. Moreover, framed field experiments in the form of experimental games have been used to shape the understanding of the importance of cooperating behaviour. PACS may also have the potential to increase cohesion in Andean communities, as the conservation of traditional quinoa varieties is associated with the maintenance of local identities and cultural traditions of the Quechua and Aymara people.

By contrast to these strengthening and complementing effects on existing institutions of collective action, it is also possible that PACS schemes, if not appropriately designed, could undermine or crowd out existing local institutions. Such a situation is illustrated for PES in Cambodia where it was found that PES institutions clash with informal ones for the self-governance of natural resources and thus seem to undermine existing conservation efforts. For instance, in contexts where communities seek to maintain a diverse genetic pool via small plots dedicated to the cultivation of underutilized non-commercial varieties, PACS associated with a too narrow conservation strategy (i.e. too few landraces covered by the scheme) might replace such patterns of collective action and may actually result in less diverse farming systems. Additionally, if only a few more powerful actors are able to take advantage from PACS, the introduction of these schemes could imply an increase of perceived inequalities, thus undermining processes of collective action.

## **Conclusions**

In general, it has been noted that there is a danger of external interventions crowding out existing social preferences as well as pro-social behaviour. Whether external regulatory mechanisms can be successful in complementing existing patterns of collective action associated with the management of natural resources appears to be very context-specific and needs to be evaluated on a community-to community basis. In any case, existing social preferences play an important role when designing external institutions.

The challenge, therefore, is to design PACS instruments in a manner allowing for flexible and adaptive institutions, and involving a socially-accepted allocation of rewards, so that PACS could potentially support and strengthen collective action in natural resource management and thus agrobiodiversity conservation.

### *For further information and full citations:*

*Narloch, U., Pascual, U. and Drucker A.G. 2010. The interactions of collective action, property rights and payments for agrobiodiversity conservation services: Illustrating institutional dynamics in the Peruvian and Bolivian Andes. 11th Biennial Conference, International Society for Ecological Economics, 22-25 August Oldenburg and Bremen, Germany.*

*The above is part of Bioversity International's Payment for Agrobiodiversity Conservation Services programme of work, which has support from the Syngenta Foundation for Sustainable Agriculture (SFSa) and the CGIAR's System-wide Program on Collective Action and Property Rights (CAPRI). Research was carried out in collaboration with the M S Swaminathan Research Foundation (MSSRF), India; the Fundación para la Promoción e Investigación de Productos Andinos (PROINPA), Bolivia; the Centro de Investigación de Recursos Naturales y Medio Ambiente (CIRNMA), Peru; and the Department of Land Economy, University of Cambridge, United Kingdom.*

