



Distributional dimensions of PES: general issues and critical aspects

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Abstract

The current paper aims to provide a differentiated view on the distributional dimension of payments for environmental/ecosystem services. Based on an in-depth literature review we structure the distributional dimension of PES. The distinction is made between general issues which restrict the conceptual basis of PES distribution on the one hand as well as aspects of first, second and third order which occur in a timeline when applying PES. General issues regarding distribution are for example such of intrinsic motivation or differences between the geographic scale of the service to be provided and of the activity set.

Aspects of first order are circumstances which hinder the introduction of PES already from the beginning, for example based on bad governance and unequal ownership rights. Aspects of second order are issues that occur through the introduction of PES; such as social imparities between recipients and none-recipients of PES or a 'monetarisation of minds', latter leading to a decrease of intrinsic motivation. Aspects of third order can hinder the effectiveness of PES even if the aspects of first or second order do not occur at all or related problems have been already solved. This concerns in particular a lack of evaluation and/or monitoring. We argue that distributional aspects of first order are more regularly occurring in developing countries and that distributional aspects of second order occur regularly in developing as well as in developed countries. While developing countries typically face regarding PES distributional aspects of third order.

Keywords: economic sustainability; justice; equity; efficiency.

1. Introduction

During the last decade 'Payments for Environmental Services' and 'Payment for Ecosystem Services', both regularly abbreviated by PES, have gained considerable attention as a concept aiming at the reduction of environmental degradation. PES has been hailed as a viable approach to improving the efficiency of conservation investments since the current ones are inadequate for conserving ecosystems globally (Chen et al. 2012, Hayes 2012). An often cited definition from the side of Environmental Economists is that PES are voluntary transactions where a well-defined ES or a natural resource use is 'bought' by at least one service user from at least one service provider but only where the service provider can actually secure service provision (conditionality) (Engel et al., 2008, Wunder 2005). While Ecological Economists highlights that in many practical cases one or several criteria of this definition are not fully met (Muradian et al., 2010; Pascual et al., 2010). Thus, the usefulness of the PES-concept has been already critically and broadly discussed in recent times (Spash, 2008; Farley, 2008; Redford and Adams, 2009; Norgaard, 2010; Vatn, 2010) and a multidimensional variety of differentiations of PES as well as a wide use of PES in different ways can be found (Swallow et al., 2009; Muradian et al., 2010; Hubacek et al. 2010). The effects of PES in environmental terms have

already experienced a broad discussion in research and practices while – due to this main focus – the social aspects of the distribution of PES have been less detailed assessed (Landell-Mills and Porras, 2002; Engel et al., 2008; Pascual et al., 2010, Cranford et al., 2011).

Hence, the current paper concentrates on these social aspects of the distribution of PES and aims to provide a new systematic view on this dimension.

2. Overview

In this paper we structure the distributional dimension of PES. The distinction is made between general issues which restrict the conceptual basis of PES on the one hand as well as aspects of first, second and third order which occur in a timeline when applying PES and which have a distinctive geographical focus (see Figure 1).

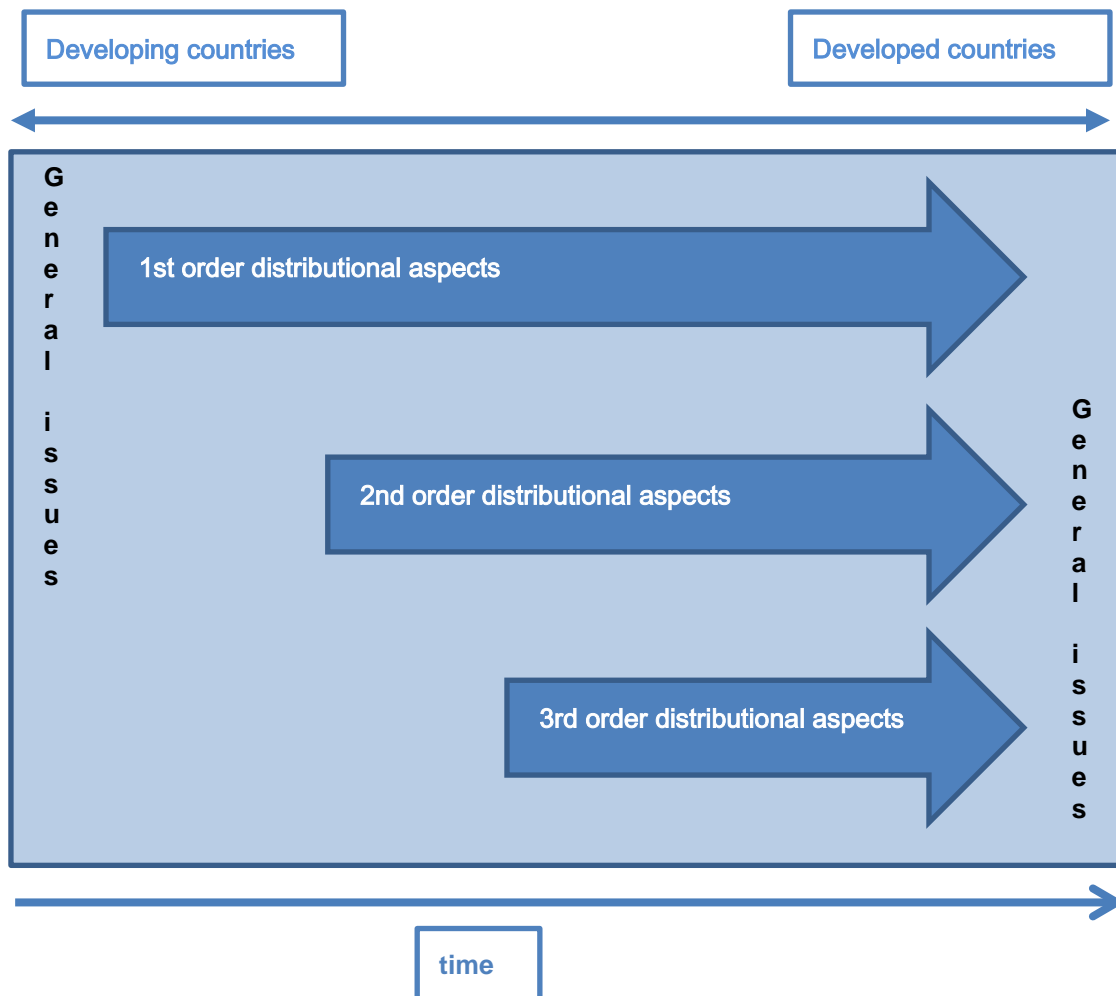


Figure 1: Distributional aspects of PES in space and time

General issues of PES underlay all the 1st to 3rd order distributional aspects, irrespectively of space and time. These general issues are for example such of intrinsic motivation or differences between the geographic scale of the service to be provided and of the activity set.

Aspects of first order are circumstances which hinder the introduction of PES already from the beginning, for example based on bad governance and unequal ownership rights. Aspects of second order are issues that occur through the introduction of PES; such as social imparities between recipients and none-recipients of PES. Aspects of third order hinder the effectiveness of PES even if the aspects of first or second order do not occur at all or related problems have been already solved. This concerns in particular a lack of

evaluation and/or monitoring. We argue that distributional aspects of first order more regularly occur in developing countries while aspects of third order are more typical for developed countries.

3. General issues on the distribution of PES

General issues regarding distribution are for example such of intrinsic motivation or differences between the geographic scale of the service to be provided and of the activity set.

3.1. Intrinsic motivation

Intrinsic motivation is a crucial point when deciding on the distribution of PES. The intrinsic motivation of service providers can lead to actively implement changes towards more environmental/ecosystem services or, at least, not to deny modifying activities by others. Intrinsically motivated people often provide directly or indirectly PES without receiving payments for their provision. ES can be used to initiate or to strengthen such motivation towards a use of environment and ecosystems in a way that provides PES. This has been for example also found by Clements et al (2010) when they compared three PES programs in Cambodia in the context of weak institutions. The first initiation of intrinsic motivation or the strengthening of existing intrinsic motivation provides the durable advantage that the ES are provided with less or no further PES in the future. Closely related to intrinsic motivation is the issue of values without prices and lexicographic behaviour. In terms of PES this leads to the question if a purely market-based approach should be chosen for the quantification of the financial contributions. An alternative would be a contribution to the intrinsic motivation to sustain local conditions, biodiversity and social circumstances that cannot simply put into prices. McAfee and Shapiro (2010) described such a situation in Mexico, where a mainly market price-based PES programme was reshaped by social movement activism by arguing that values of ecosystems are derived more from their contributions to peasant livelihoods, biodiversity, and social benefits that cannot be quantified or sold. This leads to a conceptualisation of PES that provides and sustains general and basic social and environmental conditions rather than concentrating on the valuation and monetarisation of particular environmental/ecosystem services. The inclusion of intrinsic motivation into PES strategies is intended to motivate the landholders to manage their ecosystems more sustainably (McAfee and Shapiro 2012) and also helps to prevent against the problem that the payment of simple monetarized market-prices may not be enough incentive for the protection of an environmental service (Calvo-Alvarado et al., 2009) and it may even address the concern of the livelihood of the farmers after PES stop (Zhang et al. 2008, Cole 2012). In the same breath, Prager et al. (2012) propose PES that encourages collaborative management and focuses on the process as much as on the outcome.

3.2. Differences between the spatial scales

PES programmes often show differences between spatial scales, namely the ecological scale of service generation and the institutional scale of benefit reception (Hein et al., 2006; Satake et al., 2008). This initiates a major distributional impact as the PES-solutions are often not tailor-made for the problems addressed. Consequences are for example free ridership, uncertainty about and inequalities in the distribution of benefit reception.

3.3. Trade-offs between environmentally sustainable scale and socially just distribution

According to Farley and Costanza (2010) the environmental economics approach to PES tries to force ecosystem services into the market model, with an emphasis on efficiency, while the ecological economics approach, in contrast, seeks to adapt economic institutions to the physical characteristics of ecosystem services prioritizing ecological sustainability and socially just distribution. The latter two terms have also themselves been brought into a certain not-fixed hierarchy when it comes to prioritizing criteria for

striving towards sustainable decisions (Mauerhofer, 2008). Pascual et al. (2010) provide a range of different economic fairness criteria related to their distributional equity in outcomes of PES and rank them regarding their emphasis of (social) equity and (economic) efficiency concerns. Nevertheless, trade-offs have been already made in many ways during the application of PES when deciding on priorities to be set between environmentally sustainable scale and socially just distribution (Rasul, 2009; Yuwen, 2009; Costa, 2010). This can lead even to situations where ‚Payments for Environmental Services‘ are more applied towards the direct reduction of poverty than towards the provision of these services (Ferraro, 2009). However, it has been already argued that the prime focus of PES should thus remain on the environment, not on poverty alleviation, (Wunder, 2008, Mc Afee and Shapiro 2012, Muradian et al. 2010) because a focus on both aspects may reduce the efficiency in PES meeting both objectives (Bulte et al. 2009; Mc Afee and Shapiro 2012). Thus, poverty reduction should be seen as a positive side effect (Muradian et al. 2010).

PES have the potential to contribute to poverty reduction if poor households are adequately represented among PES recipients (Cole 2012) and their inclusion does not imply efficiency losses (Muradian et al. 2010) Therefore, an integration of poverty reduction elements into PES can be based on the understanding that many ecosystem services do have public good character for which property rights have not been fully defined or allocated (Hubacek et al. 2010).

3.4. Often not negotiable ES and inadequate payments following therefrom

We argue that payments are often not negotiable and therefore payments often should not be paid at all (or not be fully paid such as requested). Following this view, conservation needs should become the determinants of price and not price determined (Farley 2008). Similarly, Sierra and Russman (2006) emphasize to focus with PES rather on needs than wants.

This argument is closely related to the lexicographic behaviour described above but addresses it from another side. Above, lexicographic behaviour has been looked at from the side of an intrinsic motivation to care for nature (and to provide ES) without the possibility of a monetary exchange. Here, the motivation to increase income towards an inadequate extent through ES-negotiation is at the stage. ES such as a certain amount of clean drinking water per capita should constitute a human right and therefore lay in the public interest. Latter could be also advocated on behalf of the restoration and maintenance of a favourable conservation status of biodiversity. Such public interests should be, if at all, primarily only negotiated towards a (adequate) market-based price. Secondly, publically implemented expropriation of ownership or other rights on ES should be possible, with or even without full (adequate) market-price based compensation. Otherwise the owner or holder of rights could through lexicographic preferences ask durably for a higher offer leading to inadequate prices beyond market solutions. This would be in particular valid for situations where a public authority has the national or international duty to ensure the provision of the ES. The two solutions just described could be – even with regard to their market-based oriented part of the price – not always be considered adequate because prices at the market can be also rather driven by a built-up financial speculation bubble than by rational valuation.

4. First order aspects with the distribution of PES

Aspects of first order are circumstances which hinder the introduction of PES already from the beginning, for example based on bad governance and unequal ownership rights. The initial distributions of power as well as the overall legal structure are crucial for answering the question who should receive PES (Table 1).

Rule	Attribute	Critical issues concerning PES
1. Ownership right at conservationists	Conservationists are protected through ownership right and a use is only possible if they accept compensations/rewards	<ul style="list-style-type: none"> • Content of right • Geographical limits of right • Enforcement effective • Public duties able to restrict rights (+/- compensation)?
2. Compensation right at conservationists	Conservationists are allowed to prevent damage through users but have to compensate them	<ul style="list-style-type: none"> • Selection of 'users' • Measuring of costs • Evaluating the costs
3. Ownership right at users	Users are protected through ownership right; restrictions are only possible upon acceptance of compensations/rewards	<ul style="list-style-type: none"> • Content of right • Geographical limits of right • Enforcement effective • Public duties able to restrict rights (+/- compensation)?
4. Compensation right at users	Users may cause costs to conservationists but have to compensate them	<ul style="list-style-type: none"> • Selection of 'conservationists' • Measuring of costs • Evaluating the costs • Issue of intrinsic values
5. Rule of inalienability	Certain uses of the environment are not allowed and no compensation is necessary	<ul style="list-style-type: none"> • Communication of restriction • Awareness of restriction • Acceptance of restriction • Incentives for acceptance

Table 1: Rules, attributes and critical issues concerning PES (Translated after Rothgang, 1997:112, and added)

Table 1 contains no cases with intrinsic motivation leading to lexicographic behaviour of stakeholders. Thus, the ownership and compensation/rewarding rights described in the first two columns of Table 1 are negotiable among the stakeholders. While some of the critical issues with regard to PES presented in column 3 of Table 1 are not negotiable at all. This concerns especially the power of the public hand to expropriate ownership or other rights due to overriding public interests. This power is legally enforceable and only the question remains if the legal systems provides for some opportunity of the expropriated person to receive certain compensation. One example for such a restriction of rights even without compensation was in the European Union's Common Agriculture Policy (CAP) the compulsory set aside rate (the amount of land that each farmer must set aside for conservation) of 10% valid till autumn 2007 (Mauerhofer, 2010). Of course, the CAP provided - in a rather political exchange - land users with a broad systems of rewards and compensation in the sense of PES for measures effecting their remaining land (Baylis et al., 2008; Dobbs and Pretty, 2008; Swallow et al., 2009). However, effects of the loss of set asides might not occur if the changes in the extent of set-aside land were below the threshold to find detectable effects on farmland birds (Lukasch et al., 2011) or if effects occur time delayed.

In countries with land grabbing, insecure tenure, overlapping claims, and lacking information on private tenure (Boerner et al., 2010) this distribution of rights is originally often far less clearly defined than described above in Table 1. These circumstances hinder - in the sense 1st order distributional aspects - the implementation of PES already at the stage of introduction from the very beginning. Therefore the question arises if the money used in these situations for direct or indirect PES should not be better invested in institutional improvements through command and control approaches (Hubacek et al., 2010). In this connection Boerner et al (2010:1272) formulate that "PES systems cannot substitute command-and-control measures: the former depend on the latter for basic governance systems to secure effective rights of exclusion, which land stewards

essentially need in order to become reliable service providers.” In connection with the distribution of rights such as described in Table 1, state-owned forests play a crucial role. It has been already shown several times for developing countries, where local people were forbidden to earn their livelihood from state-owned forests but heavily depend on them, that rewarding land use rights to communities can lead to more environmental services, improved income and more equitable distribution of income and land holdings (Devkota, 2005; Suyanto, et al., 2007). In these situations the distributional improvements can be provided without the involvement of any PES programme. Nevertheless, PES can in the context of weak institutions also become more sustainable when they act more towards the empowerment of local people besides reinforcing intrinsic motivations (Clements et al., 2010). This has been seen to contribute positively towards conservation (Cranford M. et al. 2011). Without the distribution of property rights to the poor, an essential precondition for PES is missing and alternative strategies in the sense of co-investment in (environmental) stewardship have been considered to be necessary (van Noordwijk and Leimona, 2010).

In comparison, if the distribution of land as such is clear but the quality of land is unequally distributed, Zilberman et al. (2008:255) found that “(w)here ES and agricultural productivity are negatively correlated and the poor own lands of low agricultural quality, they stand to gain from PES programs.” These authors then conclude that land diversion programs, where lands are diverted from agricultural production to other uses, have less distributional effects than working-land (WL) programs, where lands remain in agriculture but production activities are modified to achieve environmental benefits. This appears to be not surprising given the fact that the land in the first type of programme remains in any case under direct human influence and use. Furthermore Kerr et al. (2007) found for India that PES may not work as well. This was for example due to high transaction costs based in particular on the higher population density (and therefore the necessity to enter more individual contract if a contract with the whole communities cannot be achieved). Similar, Smith and Scherr (2002) concluded for carbon forestry that – in comparison to (socially and environmentally high risky) large scale projects - socially beneficial projects are less cost-effective because of their higher transaction costs.

Reasons for this effect working against a socially fair distribution are according to Kerr et al., (2007:274) the following:

- “High transaction costs make it more viable to enter contracts with the largest landowners;
- Larger landowners may be more able financially to afford the opportunity cost of turning land over to uses eligible for payment;
- The opportunity to receive payment may also cause landlords to evict tenants and shift to conservation land uses.”

Whether or not providers of ES enter into payment schemes and therefor modify the distribution of the funds is further dependent of other factors. Chen et al. (2009) for example found - in addition to conservation payment amounts and program duration - also significant impacts of social norms at the neighbourhood level on program re-enrolment. In that study, social norms were seen as shared understandings of how individual members should behave in a community under a given circumstance, and how members within the community reward or punish people for their behaviours in following or breaking the norms (in the sense of Coleman, 1990 as well as Bendor and Swistak, 2001).

Some of all these factors might occur during the implementation of PES programmes, too. Then they can be also considered critical second order aspects related to the distribution of PES, such as described more in detail in the following section.

5. Second order aspects with the distribution of PES

Distributional aspects of second order are issues that occur through the introduction of PES, such as social imparities between recipients and not-recipients of PES or a ‘monetarisation of minds’, latter leading to a decrease of intrinsic motivation.

The introduction of PES into communities intends to change the land use in different scales concerning space, time and content. This may lead to critical rebound effects on the communities itself changing negatively and reflexive the circumstances surrounding the implementation of PES. In this sense, the findings of Satake et al. (2008) suggest that market-based PES-approaches that focus on conservation of a single ecosystem service may reproduce unequal power relations among landowners. Kosoy and Corbera (2010:1228) argue in the same direction concerning PES but even more general when they suggest "that the process of production, exchange and consumption of ecosystem services is characterised by power asymmetries which may contribute to reproducing rather than addressing existing inequalities in the access to natural resources and services." These assumptions have been already justified in practice. Zbinden and Lee (2005) found for example concerning Costa Rica's since 1997 running "Pagos de Servicios Ambientales" (Payments for Environmental Services) Program - which has provided payments to more than 4,400 forest related activities - that large farmers and forest owners are disproportionately high represented among program participants. Similar, Sommerville et al. (2010) and Muradian et al. 2010 indicate in a case study from Menabe (Madagascar) on community-based PES that – beside individuals reporting high levels of perceived fairness of payment distribution and a high proportion of individuals expressing overall net benefit - a lack of adequate benefits accruing to those individuals facing high agricultural opportunity costs and evidence of sub-groups in the community reaping excessive benefits was noted across communities. Also for Zimbabwe's Communal Areas Management Programme for indigenous Resources (CAMPFIRE) evidence has been reported that the benefits in many producer communities being captured or manipulated by elites to their individual advantage (Frost and Bond, 2008). Additionally some ethnic group have been side-lined in much of the decision-making, even though they are often the original inhabitants of the relevant remote areas concerned (Frost and Bond, 2008) and the concerns of the generally marginalized women have been overlooked (Sithole and Frost, 2002). This shows that the suggestion by Costanza et al. (1997) and Daly (1992) of the need to establish a socially fair and just distribution of resources using systems of property rights and transfers is far from being achieved. Solutions of these 2nd order issues of socially unfair distributions are manifold. Recommendations reach from a simple modification of selection criteria in order to achieve not only a simple distribution, but one bringing a Pareto improvement in overall welfare (Munoz-Pina et al., 2008). This is brought by Sierra and Russman (2006:131) to the straight sentence that there is a growing expectation to improve project administrators "capacity to target payments where they are most needed and not simply where they are most wanted". And the solutions reach towards the proposal of a sort of 'Landscape label' 'aiming to involve much more service providers as beneficiaries than under current approaches without making ES sufficiently public (Ghazoul et al., 2009). Furthermore, new inequalities can occur which are not necessarily based on existing inequalities. One example is Zimbabwe's Communal Areas Management Programme for indigenous Resources (CAMPFIRE) wherein twelve of the 37 districts with authority to market wildlife produced 97% of all CAMPFIRE revenues, reflecting the variability in wildlife resources and local institutional arrangements (Frost and Bond, 2008). Further critical issues arising in connection with the introduction of PES can lead to a lack of trust and social coherence within communities. Examples therefore are possible high start-up costs that may need to be underwritten, underpayments and frequent delays between intermediary organisations and service providers (Frost and Bond, 2008). Another critical distributional issue of second order that can occur with the introduction of PES can be shortly described by the term, 'monetarisation of minds'. This indicates that behaviour fostering environmental/ecosystem services and formerly executed intentionally free of charge will not be furthermore provided without PES. This can lead to a different view on the surrounding environment and finally ends in a decrease of intrinsic motivation. This follows the decrease in community capacity to implement PES projects as proved in the Cameroon development mechanism projects (Minang et al. 2007). Similarly, Kosoy et

al. (2007) found during their comparison of three cases of payments for water-related environmental services in Central America that PES might introduce changes in social perceptions of property rights.

6. Third order aspects with the distribution of PES

Aspects of third order hinder the effectiveness of PES even if the aspects of first or second order do not occur at all or related problems have been already solved. This concerns in particular a lack of evaluation and/or monitoring. We argue that distributional aspects of first order more regularly occur in developing countries while aspects of third order are typical for developed countries.

Apart of first and second order issues, the supervision and control of the delivery of the service are essential too. The supervision could be an accompanying one in the sense of a regular monitoring. The control could be also implemented ex-post that means after the payment is made and the service is claimed to be delivered. It could also be done ex-ante of the payment but after the service is claimed to be delivered. Thus, program managers require reliable monitoring data to make informed payment decision (Honey-Roses et al. 2009).

For example, Sanchez-Azofeifa et al. (2007) evaluated Costa Rica's program of payments for environmental services (PSA), which was established in the late 1990s. They found that - despite a broad distribution of the payments across ecological and socioeconomic gradients - the 1997-2000 deforestation rate was not significantly lower in areas that received payments. This raises severe doubts on the effectiveness of this program. In general, inadequate monitoring and evaluation during and after the program implementation appear to be common, in particular in developing countries (Baland and Platteau, 1996; Le Tellier et al., 2009; Honey-Rosés et al., 2009; Jin et al., 2009) but also for the western hemisphere (Goldman et al., 2008). This scenario resulted to the criticism by Farley (2008) due to the fact that economic decision makers have continued to ignore the non-market benefits provided by critical natural capital.

A failure of ensuring sufficient monitoring and evaluation can be also seen on the example of the already mentioned CAP of the European Union. The CAP provides for a broad application of different sets of measures solely financed or co-financed by the EU and addressing environmental protection (Baylis et al., 2008; Dobbs and Pretty, 2008; Mauerhofer, 2010). The effectiveness has been widely assessed and significant lacks have been found (Kleijn et al., 2001, 2006; Kleijn and Sutherland, 2003; Wrbka et al., 2008; Uthes et al., 2010). Despite the broad application of this environmental payment scheme, the drop of essential environmental indicators is obvious. For example, Donald et al. (2006) showed that the previously documented decline in farmland bird populations across Europe between 1970 and 1990 continued between 1990 and 2000, thus confirming a continent-wide pattern of decline over at least the last 30 years. And although the GAP scheme widely funds the conservation of landscape elements such as hedges, bushes, single trees, and tree rows a loss of linear infrastructure elements especially in highly structured cultural landscapes, despite of Agricultural Environmental Measures having been provided (Wrbka et al., 2008).

The driving forces for this particular lack of effectiveness concerning PES for landscape elements within the CAP lay in the lack of information, consciousness and willingness of the receivers of the payments. A lack of sufficient monitoring and control goes hand in hand with conflicts of interest within the controlling organisations, which are closely related to the agricultural sector (Mauerhofer, 2010).

7. Conclusions

The distinction made in this paper is mainly addressing the social side of PES, in terms of their distribution among human stakeholders. Four different issues have been identified, namely general issues, and issues of so-called first, second and third order. The general

issues discussed at the beginning do characterize PES throughout the whole geographic and time scales of their conception and implementation.

Aspects of first order influence especially the introduction phase of PES and are in particular characteristic for less-developed countries. Second order aspects mainly tackle the distribution of PES as such and are capable to change the perceptions of the social stakeholders and to modify their relations among each other. These issues are also likely to occur in developing countries, but also in more developed countries. Third order distributional aspects of PES constitute the final hurdle. Without adequate monitoring and enforcement, PES are unlikely to succeed, even in wealthy developed countries. In this connection it is essential to prevent against conflicts of interest when selecting the instances which monitor and control the PES distributed.

Many social aspects dealing with the distribution of PES among stakeholders have not been paid much attention to yet. Though, obeying and addressing them during the phases of planning, introduction, implementation and monitoring appears to be crucial for the success of PES.

Without such an approach PES will not disappear from the kaleidoscope of potential actions addressing environmental protection. But they will not tend to succeed to fully defend their extent of application they currently enjoy in practice and their current prominence in the scientific literature.

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