

INSTITUTIONAL ANALYSIS OF ECOSYSTEM SERVICES AND THEIR MAIN APPLICATION “PAYMENT FOR ENVIRONMENTAL SERVICES”: WHAT SOCIOLOGY AND POLITICAL SCIENCES CAN BRING TO ECONOMIC APPROACHES?

P. Méral¹, C. Bidaud¹, D. Pesche², J-F Le Coq² and G. Froger³

Abstract: This communication aims at discussing the interest of Sociology and Policy Science to answer research questions on the institutional economics research agenda on Ecosystem Services concept and on one of its tools: Payment for Environmental Services (PES). Through case studies at international level and in different countries (Costa Rica and Madagascar), we argue that policy transfer studies (PTS), Advocacy Coalition Framework (ACF), Path Dependency Framework (PDF) and Multiple Stream Framework (MSF) could provide a significant insight to understand PES program diffusion worldwide, form and characteristics of PES functioning in developing countries.

1 Introduction

The Ecosystem Services academic literature has rapidly grown during the last years. Through a bibliometric study based on the Web of Science and Scopus databases, Aznar *et al.* (2010) quoted that the number of academic papers related to environmental / ecosystem / ecological service has been multiplied by 12 between 2002 and 2012.

¹ IRD, UMR GRED

² CIRAD, UMR ART-Dev

³ UVSQ, Laboratoire CEMOTEV

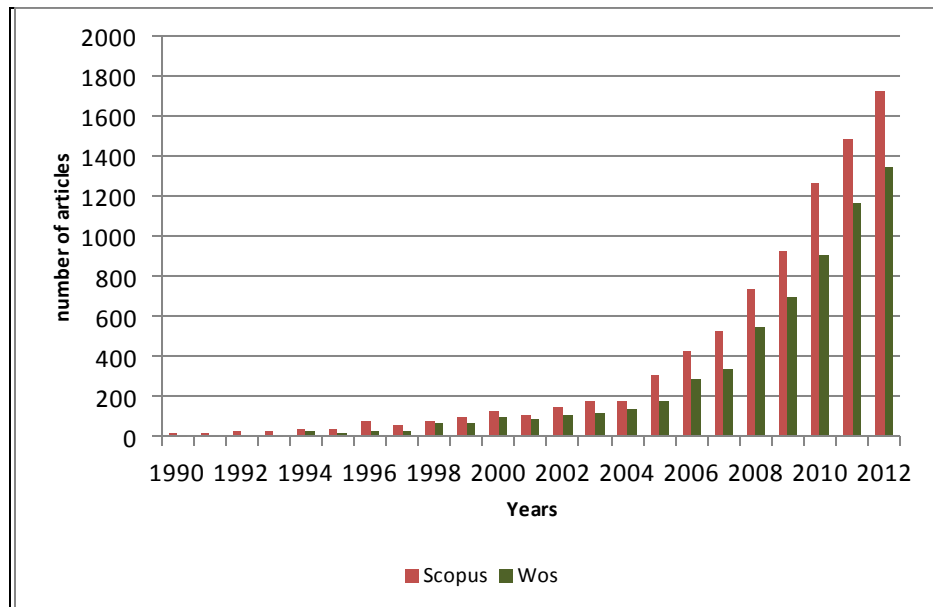


Figure 1: Trend (1990- 2012) in the references of ES literature in Web of Science and Scopus mentioning the term ecosystem / environmental / ecological services. Source: Aznar et al. (2010) updated in May 2013.

Among this large amount of papers, a theoretical debate among economists has been developed related to the provision of ecosystem services, i.e. Payment for Ecosystem Services (PES). Based on the definition of PES proposed by Wunder (2005), this tool is justified on the basis of externalities theory “à la Coase” (Engel, Pagiola and Wunder 2008, Pattanayak, Wunder and Ferraro 2010). This vision of PES has been strongly criticized by several authors from the end of the 2000’s. Mainly criticisms are based on the institutional economics arguments.

A first set of debates was based on theoretical background (Kosoy and Corbera 2010, Norgaard 2010, Muradian et al. 2010, etc). For these authors, the coasian approach is not neutral ideologically (Gómez-Baggethun et al. 2010). Through a very simple definition based on economic rationality, direct relation between beneficiaries and providers, clear identification of the ecosystem service, etc. the theoretical model gives a very simplistic vision of society and ecosystems that conducts to a commoditization process “à la Polanyi”.

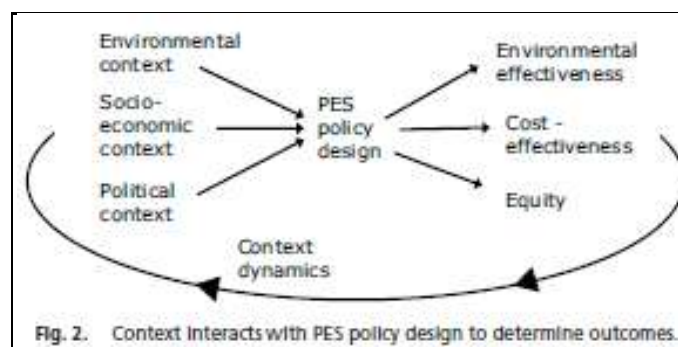
Furthermore, defining PES in a very restrictive manner creates a risk that: “the use of terms such as “PES with qualifications” or “PES-like” implicitly suggests that interventions not fulfilling all of the definition’s criteria are inferior” (Sommerville et al. 2010). So, the subliminal message of such strictly definition, in terms of public policies, is that if PES schemes do not work, this is because the different conditions are not fulfilled.

Other authors have shown that the design of PES in different part of the world was more linked to a pigovian approach than a coasian one (Schomers and Matzdorf 2013). The fact that PES schemes are mainly government-funded is the proof that different institutional designs of PES schemes exist (Vatn 2010). That is why several authors used a broader definition of PES in order to stress the different institutional design of such schemes (Clements et al. 2010, Muradian et al. 2010, Sommerville et al. 2010, Daniels et al. 2010, Swallow 2009).

Other debates have emerged in this growing literature. They are related to the implementation on the ground of such schemes. Design and governance but also efficiency and equity issues have been subject of very huge debates among ecological/environmental economists (Muradian et al. 2010, Legrand, Froger and Le Coq in press, Corbera and Pascual 2012, etc.).

Finally, all these debates have pointed out the main role of institutions and consequently the importance of the institutional economics framework. The key message of all these papers is that the institutional economics offers a very interesting paradigm to understand the PES design and efficiency. However, the causes of the emergence of PES paradigm still remain. Why, for instance, PES quickly became the main tool for environmental policies worldwide? Why several success-stories like the Costa Rican PPSA experience, are used worldwide in order to implement so-called innovative market-based instruments? Those issues are not only relevant in terms of science studies (history of sciences, science-policy interface, etc). They are relevant as well for the analysis of effectiveness and design of the PES schemes

themselves. This is what Jack et al. (2008) explained in the following figure (Fig 1):



In the same way, Vatn (2010) explains that “*PES systems are not created in an institutional vacuum*” (p.1248). Engel et al., (2008) shared the same point of view: « *PES mechanisms are not created in a vacuum by social planners or economic theorists. They develop in particular environmental, economic, social, and political contexts, and are subject to the push and pull of many stakeholders*” (p.668). Furthermore, several authors quoted the significant role of key actors like NGOs or experts in the promotion of PES (Clements et al. 2010).

However, few papers stress the relevance of international context, and the role of these international actors in the promotion and diffusion of the PES paradigm. This is all the more surprising since a large part of the institutional economics is closed to political science. Thus, the main idea of our communication is that the answer of these issues highlights the need to enlarge the institutional economics used in the field of PES studies, to a more political science (or sociological) perspective. Different theoretical frameworks like the Policy transfer studies (PTS) or the cognitive analysis of policy process should improve the institutional analysis of PES.

To highlight our theoretical propositions, we give our results from fieldwork experiences in Costa Rica, Madagascar and international arena.

These inputs can explain with a very unusual angle the emergence of new economic phenomena in the field of public policies.

First, we give an overview of the different concepts useful for our issue (section 2). Then, we use these concepts to explain the emergence of PES instrument in the international arena (section 3) and to analyze emergence and implementation of PES in national contexts (section 4). We finally conclude on the usefulness of these approaches to complement the institutional economic research agenda on PES (section 5).

2. Overview of concepts of sociology and political sciences

Within the large scope of current policy studies strands, we focus on four specific frameworks that aim at analyzing policy changes: one specifically developed to analyze policy change linking national and international dimension, the policy transfer studies (PTS), and three policy frameworks more specifically designed to understand policy change at national level: the Multiple Stream Framework (MSF), the Path Dependency Framework (PDF), and the Advocacy Coalition Framework (ACF).

2.1 Policy Transfer Studies (PTS)

The Policy Transfer Studies (PTS) emerged as a branch of policy research (Delpeuch 2008). This branch aims specifically to analyze policy adoption in an international context. The Policy Transfer is defined as the process under which the information and knowledge about public policies of a policy system – past or present – is borrowed and used in the framework of the development of public policy in another policy system (Dolowitz and Marsh 2000). This definition supposes that a process is characterized by a flow of a policy model from an emitter to a receiver. It supposes also the presence of a model of reference; actors engaged in the export and/or import of this model, channels of transmission,

mechanisms and strategies of transfers and complex process of reception leading to an appropriation of the model in altered forms, with in general, unpredictable outcomes (Delpuech 2008).

Further, Evans (2004) introduced the notion of « network of policy transfer » to highlight the importance of the intention in the process of transfer. Other authors highlight the importance of the constraints dimension of transfer when concerning importing countries.

Some research focused more on the sharper analysis of the « receivers » of the models and the modality of integration of the « exogenous » elements within the policy process through mechanisms of learning (Rose 1991, Shipan and Volden 2008, Wolman and Page 2002). Putting the focus on this reception part, these researches enable to mitigate a binary vision (strong or weak states, dominant/ dominated, ...) highlighting the relative autonomy of administration and regimes of the southern countries in their interrelationship with the international community and cooperation funding for development agency.

Research on policy learning provides us a more disaggregated vision of the transfer and shows that object of the policy could be some elements of public policy and not a "complete model". For Bennet and Howlett, the object of learning concern at least three elements : process-related, instruments and ideas (Bennett and Howlett 1992)⁴.

As PTS appears as a framework to understand internationalization of the public policies, we argue that it's a relevant framework to understand the rapid spread of policies relying on ES (ecosystem services) and specifically the diffusion of PES schemes as instrument of public policies (Table 1).

⁴ For a broader overview on theories of policy learning, see Grin, J. & A. Loeber. 2006. Theories of Policy Learning: Agency, Structure, and Change. In *Handbook of public policy analysis: theory, politics, and methods* / edited by eds. F. Fischer, G. J. Miller & M. S. Sidney, 201-219. London CRC Press/Taylor and Francis..

2.2. The Multiple Stream Framework (MSF)

The MSF has been developed by Kingdon (Kingdon 2003) and further refined by Zahariadis (2007). MSF focus on the agenda setting phase of the policy cycle. It considers that the awareness and the adoption of a public policy results from the convergence between three independant streams: 1) the problem stream, which consists in the way by which the problem is framed and the questions sets of the different groups within a society, 2) the political stream, that corresponds to the characteristics of the politics such as the policy mood, the political organization, the electoral agenda, the government agenda with what we could call the "visible cluster" of policy actors and 3), the policy stream that can be symbolized as the sum of ideas, recipes and policy instruments within which policy makers choose idea that will become policies (decision agenda). The policy stream is often associated with a set of more "hidden cluster" of policy actors (congressional staff, career public administrators,...).

Following Kingdon, these three streams evolves in a quite independent ways. The MSF is relevant to explain the emergence of policies as the results of the convergence of the different streams, at a specific moment, creating a policy window. This framework emphasize the importance of policy entrepreneurs, which are person that play a proactive role in the convergence of the three streams and the opening of a policy windows (Kingdon, 2003) or that use a policy windows to foster the adoption of their policy solutions (Zahariadis, 2007).

This framework combines a strategic analysis, with the key role of policy entrepreneurs but also taking into account more structural elements.

This framework appears relevant to analyze why the adoption of PES policies in national context occurs at a specific time, and to answer why the PES are integrated in environmental policies? How? And why at a particular moment? (Table 1)

2.3. Path Dependency Framework (PDF)

Linked with the historical institutionalism⁵, the path dependency framework tends to understand the link between the institutions and decisions, by replacing them in a historical sequence, analysing in particular the influence of past choices on present decision.

Initially introduced by economists and in particular North (1990), the concept has been mobilized by Pierson (2000) to study policy change. He shows that past decision affected present decision (policy feedback). This feedback may be particularly constraining in some domains, due to increasing returns link to the pregnancy of the collective action, cognitive process of interpretation and collective legitimization of the policies issues and the constraints created by the existing institutions. This latter, process of lock-in could arise when the institutions designed in the past are creating irreversibility that is difficult to overcome.

Path dependency is also mobilized to explain dynamics of institutional changes and the influence on policies decision, mobilizing the crisis as a privileged moment of the analysis. For J. Mahoney (2001), crisis is considered as an initial factor of a durable change of policy following antecedent conditions.

⁵ At least three different analytical approaches, each calling itself a "new institutionalism", have appeared over the past 20 years: historical institutionalism, rational choice institutionalism and sociological institutionalism (Hall and Taylor, 1996). First, historical institutionalists tend to conceptualize the relationship between institutions and individual behaviour in relatively broad terms. Second, they emphasize the asymmetries of power associated with the operation and development of institutions. Third, mainly focused on the study of public policies (Collier and Collier, 1991; Skocpol, 1992), they tend to have views about institutional development that emphasize path dependence. Fourth, they are especially keen to integrate institutional analysis and the contributions that other kinds of factors, such as ideas, can make to political outcomes.

The central place of crisis in institutional change process has been reevaluated more recently by J. Mahoney and K. Thelen (2010) who consider that institutional changes are gradual. A theory of gradual institutional change grounded in a power-distributional view of institutions that emphasizes ongoing struggles within but also over prevailing institutional arrangements (Mahoney and Thelen 2010, p.xi). This approach renews Lindblom work on incremental changes (Lindblom 1959, Lindblom 1979).

In the case of PES, PDF appears then as a relevant conceptual framework to analyze the reasons of the adoption of the PES instrument and characterize this change (incremental versus radical) and the role of institutions in the dynamic of adoption of PES policies.

2.4. Advocacy Coalition Framework (ACF)

The ACF framework has been developed by Sabatier and Jenkins (1993) and refined to understand the policy changes (Sabatier 2007). This framework has been used to analyze a large amount of policy in particular environmental ones (Weible et al. 2011). This analytical framework, that has been updated to further integrate larger set of situations (Sabatier and Weible 2007), puts forward the notion of coalition, that is a group of actors that are bind by a similar belief system and promoting a same policy option. The policy changes are then the results of the balance of power between different coalitions of actors within a policy system, and/or the learning process inside dominant coalition.

This framework is particularly relevant to understand the adoption of new policies in a specific policy system (table 1).

Table 1: Main research questions and policy concept

Concepts	Main conceptualization	Main research questions (applied to ES and PES issues)
Policy Transfer Studies (PTS)	The policies are the results of a transfer from an emitting policy system to a receiving policy system. The process supposes a reference model, actors in charge of export/import process.	What are the modalities of ES and PES policy transfer? Who are in charge of the transfer of ES and PES? What is the object of the transfer?
Path Dependency Framework (PDF)	The policies changes can be interpreted as institutional changes (as rules changes), that may be more or less incremental. Policy decisions are affected by previous choices. Changes are affected by existing institutions that may lead to lock in process.	How and why PES and ES related policies are integrated in former policies? What is the magnitude of the changes related to ES and PES policy adoption?
Multiple Stream Framework (MSF)	The policy change results from the conjunction of 3 streams (policy, politics, and problems stream) thanks to policy entrepreneurs.	Why the PES or ES related policies have been integrated in environmental policies? How? And why at this particular moment?
Advocacy Coalition Framework (ACF)	Policy change is the results of interaction/ competition between coalitions of actors within a policy system. These changes are enabled by change in policy resources and learning process.	Why the ES related policies or PES instrument are adopted in a national context? How the PES schemes change over time in the implementation process?

Source: authors

3. ES and PES diffusion at international level

The genesis and implementation of PES around the world, and more specifically in Costa Rica and Madagascar in this paper, has to be situated in the broader process of emergence and diffusion of ES concept and PES as emblematic instrument for ecosystem management.

In the perspective of internationalization of public policies, there is a consensus about the idea that domestic policy processes are in closed interactions with global processes. Specifically, the PTS framework was developed to capture the growing processes of circulation of ideas and instruments at international level and/or between different countries.

3.1. ES and PES diffusion: two streams progressively interconnected since 2005

In this aspect of emergence, circulation and diffusion of ES and PES at international level, and between international and domestic levels, we underline two key aspects: (1) the differentiation between ES emergence and PES emergence, with closer articulations between two processes after 2005 (Pesche et al. 2013a) and (2) the key role played by NGOs (Hrabanski et al. (forthcoming)), private sector (Hrabanski in press) and some key scientists in the dissemination process of PES and ES related policy instruments (Pesche et al. 2013).

The topic of ecosystem services, ecological services, environmental services (ES) and payments for environmental services (PES) has recently become the main reference for international environmental policies (broadly including forest policy, agro-environmental measures, conservation policies etc.).

Brought to media attention by the Millennium Ecosystem Assessment (MA) in 2005, these notions have spread rapidly in both political and scientific arenas. Recent studies on history of ES and PES conceptualize PES as policy implication of ES concept in a global process of commodification (Gómez-Baggethun et al. 2010). PES framework is understood as a consequence of the MA process in mainstreaming ES into conservation and environmental policy (Redford and Adams 2009). In a recent book chapter, we showed that two relatively independent and contemporary processes, at least during the 1990 decade, led to the emergence of the ES concept on one hand and the PES concept on the other (Pesche et al. 2013b). Whereas the concept of ES is closely

linked to a desire to attract official attention to the threats to ecosystems caused by human pressure, the concept of PES seems rather to have stemmed from a concern to ensure funding for conservation in tropical countries over the long term (Landell-Mills and Porras 2002, Wunder 2005).

In the past few years the two concepts have gradually converged, apparently due to a shared desire to translate them into operational form through public policy instruments.

3.2. Key actors involved in ES and PES diffusion

In a paper to be published (Hrabanski et al. (forthcoming)), we used PTS framework to analyze the role of large NGOs in the diffusion of Market-based instruments (MBIs) for ecosystem services (ES). We showed that the non-state actors aiming to impose, promote or facilitate the import-export of specific solutions can be supranational structures such as the European Union (EU), international organizations (international financial institutions, Organization of United Nations), transnational enterprises (banks in particular), consultancy agencies, and NGOs ((Evans 2004). There are also collective actors less institutionalized, but structured in networks such as epistemic communities (Haas 1992), advocacy coalitions (Keck and Sikkink 1998) or global public policy networks (Stone 2008).

For instance, Hrabanski (forthcoming) showed that the Millennium Ecosystem Assessment helped the constitution of an advocacy coalition in favor of market based instruments coming from different private sectors.

Comparing France, Madagascar and Costa Rica cases, we were able to develop the importance of NGOs for the international diffusion of PES instrument into different countries (Hrabanski et al. forthcoming), thanks to their link to international scientific networks, and to specific individuals who circulate among different arenas. Through the approach of policy transfer studies, we pointed that the diffusion of PES instruments did not follow the classical north/south or top/down dynamics. Finally, we showed that the integration

of new instruments depends on the national context and on the place led by the government to NGOs. Thus the importance to look closer to the national context around environmental policies to understand the integration and implementation of PES instruments

4. Genesis and implementation of PES in national contexts

Policy analysis approaches were developed to understand different cases: namely Costa Rican Payment for Environmental Services Program and Malagasy pilot projects cases with very different types of PES. These two cases are very different regarding their forms and governance (Bonnal et al. 2011).

In this section, we synthesize different studies that we developed with these policy analytical frameworks: especially MSF (Le Coq et al. 2013), PTS (Le Coq et al. 2010) and ACF (Le Coq et al., 2013) in Costa Rica, and PDF (Bidaud et al. 2013, Froger and Méral 2012) in Madagascar. The aim is to compare the contribution of those frameworks to the understanding of PES implementation in developing countries.

4.1. PTS and the relation to international arena in the adoption of PES

PTS perspective enables a peculiar to shade light on the process of adoption of a policy and institutional arrangement change regarding relationship with international context. In this sense, Costa Rica and Madagascar shows very different feature as Costa Rica adoption of PES was mainly the results of national interactions between actors where diffusion of ideas came from personal relationship and networks between national and international elite (Le Coq and Méral 2011). The design and adoption of PES appears more as a genuine national construction than a clear transfer of an existing reference. On the opposite, the Malagasy case show the importance of international actors and in particular

international NGOs in the adoption of PES instrument (Hrabanski et al. forthcoming).

The PTS approach enables to characterize the features of PES integration. As such, whereas Costa Rica PES program has become a referential for PES program due to process of advertisement carried out by donors (World Bank) and academics national and international, Malagasy is a concept taker; and the application tends to follow the blueprint of other situations.

The difference regarding process of adoption can be explained by the contrasted situations between the two countries, where Costa Rica is characterized by a relative high capacity of state administration and power, compared with Malagasy state where public institutions are very fragile.

4.2. PDF: the magnitude of the policy innovation/change and the role of existing institution

The path dependency framework has been used in several publications about Madagascar at different levels, in order to demonstrate the degree of innovation of the “new” policy.

At the national level, Froger and Méral (2012) show two critical junctures from “fortress conservation” to “integrated conservation » in 1990s and then a wing back towards a more conservationist environmental policy in 2003. Those critical moments when a decision is made creating locking effects define a change in the environmental policy (Bidaud et al. 2013). Nevertheless, Froger and Méral (2012) conclude that these critical junctures reflect the hybridization of environmental policy, as a result of a process of the layering of successive institutional arrangements.

At the local level, PES implementation is rooted in past actions and we observed sedimentation or a hybridization of different projects which result of the local acceptance of the new program. PES projects are often a requalification of past projects in situation of funding shortage. Institutional innovation is therefore incremental and a result of an

adaptation process by actors at the local level (Bidaud et al. 2013).

This framework has also been used for analysing the Costa Rican Program. Daniels et al. (2010) talk about institutional path dependency to understand the impacts of PES policy in Costa Rica. Pagiola (2008) did the same when he analyzed this policy: « *The PSA program did not start from a blank slate* » (p.712). According to Froger et al. (forthcoming), this program reflects a kind of “requalification” of pre-existing public intervention systems, particularly in forest policy. Indeed it encompasses and redefines the former system of subsidies implemented by the Costa Rican government to fight deforestation. One explanation is the signing in July 1995 of an agreement between Costa Rica and the International Monetary Fund (IMF)⁶ banning the Costa Rican government from paying subsidies to productive sectors. In that context, a new type of justification had to be found for supporting the forestry sector, shifting from a government support rationale to market-based instrument rhetoric (Le Coq et al. 2012).

Further, during the implementation phase of the PESP (from 1977 to nowadays), we can observe that the core principle set in the original design of the program has been maintain overtime (Le Coq et al. 2011). For instance, the payment still concentrated to forestry activities whereas some actors wanted it to enlarge. Even if some new social indicators has been integrated to the monitoring of the program, the main indicator of PESP implementation has been maintain (i.e. the total forest area). These permanence of the PESP could be interpreted as institutional *lock-in* due to the pregnancy of (productive oriented) forestry institutions such as FONAFIFO and the ONF in the governance of the PESP.

⁶ This agreement was part of the negotiations for Costa Rica's entry to the WTO and negotiations between Costa Rica and the World Bank for a structural adjustment plan.

4.3. MSF: the policy windows in the adoption of PES

The Multiple Stream Framework aims at understanding why a public policy emerged at a particular moment. The Costa Rican PES program and Malagasy PES projects emergence may be explained following this framework.

We showed in different publications (Le Coq et al. 2012, Le Coq et al. 2013) that the implementation of the Costa Rican PES program resulted in 4 different factors: 1) the existence of a clearly identified problem of deforestation, 2) the existence for about two decades of support mechanisms to forestry sector and organized interest groups representing the forestry sector, 3) the development of ideas streams within Costa Rican elites linked to international networks, 4) the existence of policy entrepreneurs who took advantage of the national and international context to build a compromise behind this new forest policy in Costa Rica.

In Madagascar, we recognized the same problem stream with deforestation fighting, biodiversity conservation and sustainable funding research for environmental policies. The policy stream is largely dependent on international norms in Madagascar and ES and PES were clearly brought by international actors. The national elite integrated this rhetoric of ES as part of their national environmental strategy since a particular event. The newly elected president Marc Ravalomanana announced the tripling of protected areas size in 2003 during the IUCN Durban Conference showing to the international community his commitment to environmental questions. A study from the French cooperation and the World Bank recently submitted to him argued the potential benefices of protected areas (thanks to ecotourism revenue, interests from foundation and from the hydrological service provided by the forest) and impacted the decision of the president. This paper may then be seen as a support document of politics stream.

The Malagasy national context as well as the Costa Rican one may be analyzed as favoring the development of PES instruments through the convergence of three streams

(problems, policy and politics) and the opening of policy window.

4.4. ACF, what are the roles of coalition(s) in the adoption of PES?

The emergence of the national Costa Rican PES program matches with an equilibrium change between the dominant coalition on rural spaces management and the empowerment of conservation actors (Le Coq et al., 2013). It is the result of a compromise between different forces and lobbying group around forest management. This compromise has been built thanks to the work of two key actors: the Ministry of environment supported by public and private actors forming the forestry coalition on one hand, and a deputy promoter of an environmental and social vision of forest on the other hand.

In Madagascar, we showed that the national elite were first reluctant to the new and economic vision of nature carried on by PES instruments, as they were attached to the intrinsic value of nature (Andriamahefazafy et al. 2012). But because of the necessity of conservation finance renewal, they rally behind the PES instruments following NGOs and donors. They finally were very proactive to develop the REDD+ national mechanism policy in response to FCPF, a special fund for forest carbon from World Bank (Bidaud 2012).

Table 2: main results from case studies according to conceptual framework

	Costa rica	Madagascar
PTS	Role of international interpersonal network not dependence from donors (Le Coq and Méral, 2010)	Role of cooperation Dependence from donors (Andriamahefazafy and Méral 2004)
MSF	Problem stream : Deforestation, high biodiversity, research of finance ; policy stream : politics elites flux of ideas and international networks of	Problem stream : Deforestation, high biodiversity, research of finance ; policy stream : new international norms, carbon market ; politics stream : new

	scientists ; politics stream : Importance of policy entrepreneurs (Le Coq et al, 2013)	president announces tripling of protected areas surface during Durban international Conference
PDF	Limited change (more rhetorical) Use of PES to justify existing instrument Facilitation of the process due to existing institutions (such as fonafifo) (Pagiola 2008) (Le Coq et al. 2012)	Two critical junctures at national level and hybridization of environmental policy (Froger et Méral 2012) Dependence of past institutions at local level, (Bidaud et al. 2013), incremental innovation institutions at both levels (Bidaud et al. 2013).
ACF	Adoption of PES to maintain existing incentive regime thanks to a coalition of public / private forestry actors (Le Coq et al, 2013)	Balance between international actors (funders like world bank) who wish to implement international norms and national elites who are proactive to find new ways of financing biodiversity conservation driven by international NGOs (example: REDD+) (Bidaud 2012)

Source: authors

5 Conclusion

The aim of this communication was twice: at a first level, we wanted to apply these different political science frameworks to the PES issues in order to better analyze the emergence and problems met by this kind of instruments. The results seem to be very promising.

At a second level, we tried to show the relevance of the use of such frameworks to improve the institutional economics. Economic literature on PES reflects the existence of the two main schools of institutional economics: the "New" Institutional Economics (NIE) and the "Old" Institutional Economics (OIE), following the distinction made by Williamson (Williamson 1975).

The coasian approach used by several papers on PES is based on economic rationality which is typical of the NEI approach: people make choices (for instance conservation vs deforestation – see (Pagiola and Platais 2002) based on an individual cost-benefit calculus. For NIE, institutions exist in order to solve problems links to collective actions based on this individual economic rationality (Stanfield 1999). Institutions affect individual behaviors but only in terms of constraints or new rules (Hodgson 1993). The main question dealing by the NEI is the choice of the more efficient institution which is selected through the lowest possible transaction costs.

The renewal of OIE which is strongly apparent in economics, is well developed in the issue of PES too (Muradian et al. 2010...) For OIE, links between action theory and institutions are more complex. Institutions emerge and change through the actions of people but these actions are linked to the design of institutions as well (*embeddedness*). Then, the rationality of people is “multi rational” (Vatn 2005). It depends on norms, rules, power, interests...

In terms of environmental policy, the preference for PES instruments (and more broadly the preference for MBI) is justified on the individual economic rationality.

This is because economic actors, in our case the providers of ES, make choices through the calculus of costs and benefits of different land uses, that monetary compensation allows to change behavior in the desire sense and at lower cost.

For OIE, the choice of instruments depends on the context in which the policy is applied. The effectiveness of PES schemes is subordinated to motivations, perceptions and all formal and informal rules of people concerned.

However, OIE (and NEI too) mainly focus on institutional change at local level (Ostrom). The PES literature does the same. Unfortunately, it does not answer to the main question of the origin of this kind of “new” instrument. Why is it applied everywhere? Why is it applied in reference of this economic rationality assumption? Why this norm is now mainstreamed through different actors and organizations like CDB for instance? The different scales of governance should

be analyzed in order to understand in a larger sense the importance of norms, values and interests in the evolution of institutions.

Analytical inputs provided by the several theories developed in this paper show us the pertinence of developing links between institutional economics, mainly OIE, and political science. The issues of norms, power, networks, conflicts, etc. can be analyzed through the lenses of multilevel approach. The issue of ES and PES can be explained by actors or organizations which share and spread specific values (the provision of ecosystem or environmental services) on biodiversity at different levels. In a world interconnected, where networks are the new and main way to spread information and informal norms, these actors and organizations play an important role for institutional change, i.e. the adoption of new tools for public policies.

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