Sustainability Labels and conservation issue: insights from Costa Rican and Malagasy experiences

Jean-Francois Le Coq[1], Georges Serpantié[2], Fernando Saenz-Segura[3], Roy Mora-Vega[3], Fano Andriamahefazafy[4], Pierre Romain[2]

1: Centre de Coopération International en Recherche Agronomique pour le Développement (CIRAD) – UMR ART-Dev (Acteurs, Ressources et Territoires dans le Développement); jflecoq@cirad.fr, visiting profesor in UNA / CINPE Costa Rica

2: IRD, Institut de Recherche pour le Développement, UMR GRED (Gouvernance, risque, environnement, développement)

3: Centro Internacional de Política Económica para el Desarrollo Sostenible (CINPE) de la Universidad Nacional de Costa Rica (UNA).

4: C3ED Madagascar (Antananarivo University)

Communication for the 134th EAAE Seminar: "Labels on sustainability: an issue for consumers, producers, policy makers, and NGOs", March 21-22, 2013, Paris

Abstract

During the last decade, labels have been gaining importance with the development of consumers' concern about social and environmental issues. Created to better inform consumers on the intrinsic characteristics of the products, the labels are also considered as market based instruments for biodiversity and ecosystem services, and local development. However, the dynamic of implementation of label in producers' countries, as well as the contextual factors that may affect the local effects of label implementation on conservation issues, have been poorly analyzed.

This communication aims at analyzing the effects of label implementation on conservation and local development, with an emphasis on the role of intermediary actors and strategy of the promotion of local actors.

Based on the analysis of the four cases studies of labels implementation in two tropical countries, Costa Rica and Madagascar, we argued that the effects of the label depend on the strategy of the local promoting actors as well as socio-economical and political context of implementation. We also argue that environmental and social effects depend on the agricultural and socio-economical reference situation. We identify limits of label approach to foster economic development, such as its incapacity to address problems of price volatility or asymmetries between producers and downstream actors, and to deal effectively with conservation issues, such as the lack of appropriate spatial and actor' targeting.

We conclude with some considerations to take better take advantage of label to foster conservation and development in local conditions.

Key words

Label, Value Chain, Conservation, Local Development, Costa Rica, Madagascar

1- Introduction

During the last decade, the sustainability labels have been gaining great importance with the arising of consumers' concern on social and environmental issues. Created to better inform consumers on the intrinsic characteristics of the products (Gallastegui, 2002), labels are also considered as market based instruments for biodiversity and ecosystem services conservation (Pirard, 2012). They are also considered as a tool for promoting local development and conservation (Mollard, 2002; Angeon et al., 2007; Cavrois, 2009). Early literature has focused on several issues on labels, such as consumers' motivations towards the purchase of labeled products (Daniel et al., 2010), the effects of label on welfare of producers (especially small-scale producers) (Valkila, 2009), and the producers potential for products upgrading inside their respective global value chains (Muradian et Pelupessy, 2005). Conversely, the dynamic of implementation of label in producers' countries and the contextual factors that may affects the local effects of label implementation on conservation issues have been poorly analyzed.

In this paper we aim to analyze the effects of label implementation on conservation, SE provision, and local development, with an emphasis on the role of intermediary actors and their promoting strategies.

Based on case studies of ecolabel[1] implementation in two southern tropical countries, Costa Rica and Madagascar, we argue that the effects of the label depend on the strategy of the local promoting actors, as well as natural, socio-economical and political context within which the labels are developing.

The rest of the paper is organized as follows: in the next section, we specify the conceptual background related to ecolabels, and conservation and development issues. Section 3 introduces the methodology of the study. Then, we present and analyze the dynamic of implementation of the ecolabels in the selected case studies (section 4). Section 5 highlights the main results of the implementation of this ecolabel regarding development and conservation. Finally, in section 6, we discuss the limits of effects of ecolabel implementation regarding development and environmental issue.

2- Ecolabel, conservation and development

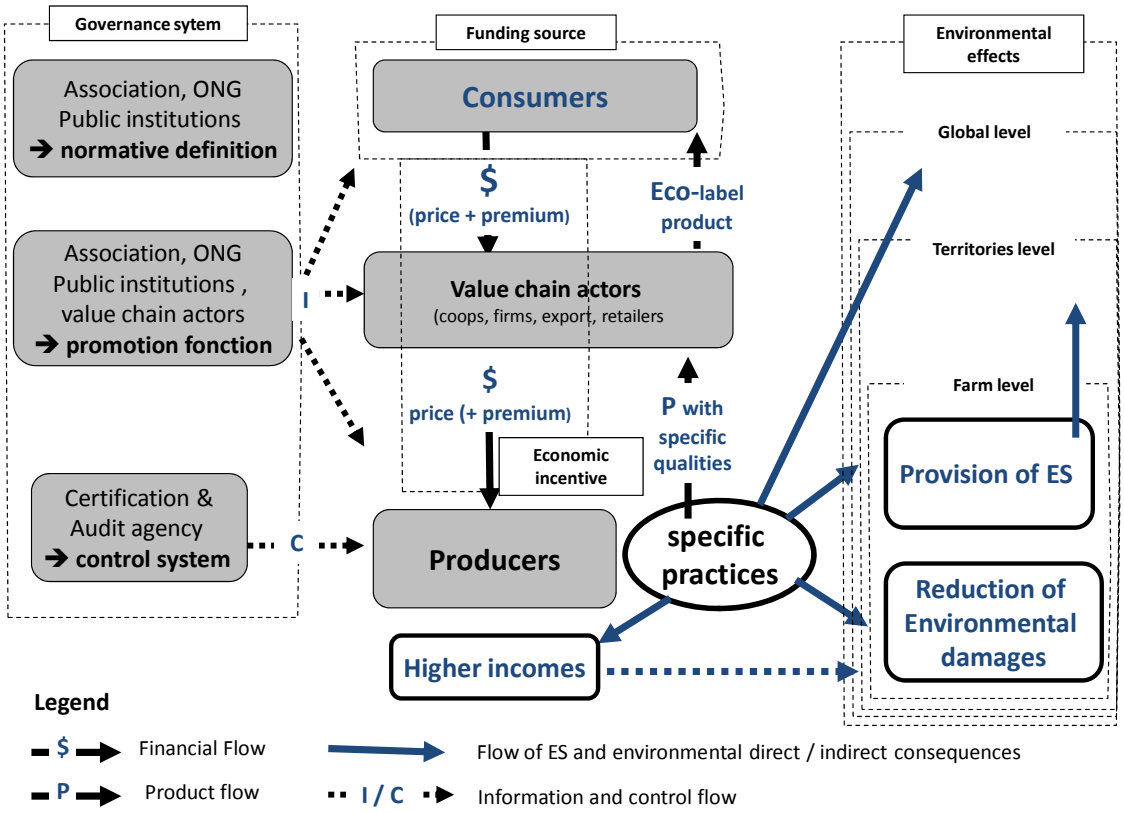
Ecolabels (EL) aim at providing more information to consumers on the environmental implications behind the type of products they consume and aim at promoting producers, the Government, or other agents to increase environmental requirements for specific type of products or services (Gallastegui, 2002). By extension, we refer to EL as institutional devices based on a sign of quality that ensure the compliance with a voluntary standard that tend to improve both the ecological and economical values of products within value chains. EL can be private brands, thus, they are protected by the legislation related to private brands and intellectual property rights. It may be also a public label defined and regulated according to national or international level legislations, such as the organic label. The EL could have different ways to be defined, promoted and controlled (Soto et Le Coq, 2011). Unlike "territorial labels" (such as appellation of origin, geographical indications, "parks" brands or

[1] In this paper, due to the semantic proximity, we will use the term ecolabel and Sustainability Label, in an indistinctive manner.

landscape label) that include a spatial or geographical dimension[2], EL do not refer to specific areas, and do not include geographic conditions in their normative.

Along with the development of societal concerns regarding environmental issues, a large array of EL (as voluntary standards in general) has blossomed during the last two decades. As limits of conservation instruments was highlighted and EL was raising, EL have been considered as tools for conservation of biodiversity and ecosystem services (Pirard, 2012), or as tool for local development that facilitate conservation (Mollard, 2002; Angeon et al., 2007; Cavrois, 2009). Considering the different approaches and policy instruments to cope with environmental issues, such as the cultural (environmental education), legal (command and control, protected areas) and economic (incentive schemes attached to the value chain or to the territory) ones, EL have been clearly set as positive economic incentive tools (Wunder, 2005). As such, it shares with the payment for environmental services (PES) scheme, several structural and functional features (Le Coq et al., 2011). Indeed, EL scheme contains 3 basic elements: a funding system (through consumers of EL products), a payment/incentive system (through the premium price paid for the produce to producers), and a governance system (Figure 1). The governance system complies with 3 main key functions: i) the definition of the normative, ii) the control of the normative (carried out by certifying and auditing bodies), and iii) the promoters function that consists in fostering the adoption of the normative by producers (and also the recognition and mobilization of the EL by actors and consumers inside the value chain).

Figure 1: Functioning and environmental effects of ecolabel



Source: Authors

[2] This "territorial label" as ecolabel may have environmental purposes, such as landscape labels (Ghazoul et al., 2011), or may include an environmental dimension in their standard (Dedeire, 2011). However, we will not consider them in this paper.

EL developed while mix of conservation and development was being evolving from dissociated participatory forms (such as Integrated Conservation Development Program-ICDP) to a more contractual form of participatory involvement of communities (though PES and , conservation contracts). Therefore, EL appears as an innovative device to support conservation efforts (Ghazoul et al., 2009) by compensating unanticipated social effects of the PES, and by better involving of a key player, whose responsibility is important in the management of rural areas: the consumer himself.

EL functions as a transmitting device of consumers' concerns to producers, where expected environmental effects are yielded and financed by the purchase of "labeled" products (Figure 1). EL requests aim to influence producers' practices in order to become or remain favorable to the environment. Specific practices (defined by the EL normative) are supposed to generate products with some specific characteristics matching consumers' expectations, but also to provide ES (such climate regulation, water quality and quantity regulation biodiversity, soil conservation, scenic beauty) and to reduce environmental damage or "disservices" (contamination by pesticides, deforestation…). These effects could be expected at farm level, but also at territories (or landscape) level or even at larger scale. Moreover, the specific practices regulated by the EL normative (joined with the payment incentive) should also generate higher incomes and social welfare for local population, that also may encourage them to reduce their pressure on natural resources (Figure 1).

Based on this framework, we questioned in particular the specific role of local actors (as promoters) and local context in the effects of EL in terms of conservation and sustainable development. For this purpose we studied empirically the implementation of several ecolabel in two contrasted developing countries.

3- Case studies, material and method

To analyze the implementation of ecolabel on the conservation and local development, we consider the experiences of implementation of 3 labels, Organic (Org), Rainforest Alliance (RA) and a local private brand "Landin' Itasy" (LI) in two tropical countries, Costa Rica and Madagascar (Table 1).

Table 1: Case studies

Label	**Organic (Org)**	**Organic (Org)**	**Rainforest Alliance (RA)**	**Marque « Landin' Itasy » (LI)**
Countries	Costa Rica	Madagascar	Costa Rica	Madagascar
Products	Pineapple and coffee	Vanilla	pineapple and coffee	Silk

Source: authors

We choose Costa Rica and Madagascar, as they are characterized by contrasting socio-economical and politico-institutional conditions, but are facing important issues regarding biodiversity conservation. Costa Rica counts with 5 % of world biodiversity in a very small country, while Madagascar is characterized by a specific unique endemic biodiversity. Costa Rica is considered as an intermediate income country, that is well known for its conservation policy (Evans, 1999; Steinberg, 2001), and the extension of its protected areas network, that covers up to 25 % of the national territory. Although the policy and institutions in charge of conservation are consolidated, the integration of environmental concern in the agricultural agenda has been very limited (Le Coq et al., 2010). The Costa Rican agriculture is mainly

relying on intensive export-oriented production systems, such as pineapple, banana, or coffee. Hence, despite its green image at international level, Costa Rica is one of the higher consumers of pesticides per hectare in the world. On the contrary, Madagascar is a low income country, where its biodiversity is put in danger by the increasing rural demographic pressure and the lack of strong and reliable public institutions enable to enforce an effective control on the natural resources management. Although the protected areas have been developing under the influence of NGOs and international cooperation, there effect on conservation has been limited due to difficulties to enforce their exclusion zones and the lack of support from local population (Bertrand et al., 2009). These limits have been even more stringent during the phases of political instability (Ballet et al., 2010).

We selected as case studies certified products under public or private schemes. As public schemes, we consider organic agriculture (OA), with the case of the coffee and pineapple in Costa Rica, and the case of vanilla in Madagascar. These are three export products of national importance in both countries. We also selected two cases of private label that have been developed more recently under the impetus of international or national NGOs. The first case is the case of Rainforest Alliance (RA), a label developed in late 80s by a network of Latin-American associations, the *Sustainable Agriculture Network - SAN*. This label experienced a very rapid development during the last decade. This label is nowadays developed in a large set of countries and products, especially of international exports products, such as coffee, and especially export products known for their non-sustainable production system such as historically, banana, or more recently, pineapple (Mora-Vega et al., 2012). The second case is the case of the private brand LI**,** developed by the NGO CITE in Madagascar to promote the production of wild silk in the region of Itasy and support forms of sustainable collective management of the ecosystem where wild silkworm lives.

For each case, we realized direct interviews to EL promoters and actors of the value chain to capture their motivation and strategy, as well as producers and their organizations to analyze their rationale to mobilize the EL as well as the current effects on their practices and land use changes, and their implication regarding environmental and conservation issues.

4- Ecolabel implementation, promotion dynamic and local mobilization

To analyze the implementation of the ecolabels and their context, we consider firstly the role of EL promoters. This promoter is the actor that disseminates information and promotes labels to local population (Table 2a). Then after, we analyze the mobilization of the EL by the local population and their motivation (Table 2b).

4.1. The promoters, their motivation and ecolabel targeting

Even all the EL put forward the interest for the environment, in the implementation stage, we can distinguish two ways of promotion: the EL promoted by the actors inside the value chain such as the case of Org coffee and pineapple in Costa Rica or the LI silk in Madagascar, and the EL promoted by the conservation program or organization such as the case of RA in Costa Rica and organic vanilla in Madagascar (Table 2a).

Table 2a: Promoters and targeting of ecolabels' implementation

Case		Organic pineapple and coffee in Costa Rica	Organic vanilla in Madagascar	RA pineapple and coffee in Costa Rica	LI silk in Madagascar
Promoters		Producers' Organization, exports companies or NGOs	Expert in conservation – national park administration	International NGO	Local value chain platform & National NGO
Promoters' Motivations		adoption of safer and cleaner agricultural practices and support to family agriculture	Economic support for the population living around the protected area to promote their adherence	Conservation of the habitats and biodiversity	Valorize the value chain, promoting the small producers and protect the local know how and natural patrimony (territorial development)
Target:	**Actors**	producers in cooperatives	producers in cooperative		small rural producers and craftsmen
	Territories	no spatial targeting	spatial targeting in territories of conservation issue	no spatial targeting	spatial targeting in territories of conservation and development issue

Sources: Authors based on interviewed 2011

- ***Promotion by value chain actors***

When the ecolabel is promoted by value chain actors, the environmental motivation of promoters is secondary and the main objective is more economic-oriented: creating more added value from production or follow market demand for sustainable products.

In the case of organic production in Costa Rica, the promotion has been realized by the national organic producers' organization[3] and the support programs funded by international cooperation[4]. The institutional support to Organic producers has been limited[5]. According to products, the development of organic production has followed different patterns. The organic coffee production in Costa Rica begun in the early 90s but experienced a rapid growth after the coffee price crises the early 2000s. It has been promoted by producers' organization as an alternative to the low international coffee prices. However, even if it has increased rapidly, it has still represented a very low share of total production, with less 2 % the coffee production in 2010 (Soto et Le Coq, 2011). In the case of pineapple, the value chain is strongly controlled by downstream actors (Vagneron et al., 2009), and the promotion of organic production has been mainly made by the exports companies to cope with the increasing demand of the market, or in a lesser extent by international cooperation projects, to offer a better added value to small scale farmers. Hence, for both sectors, the motivation of the promoters has been mainly economic (product differentiation, added value, and better valorization of the production). Environment seems more to be a marketing argument (differentiation) than a purpose in itself.

LI silk brand in Madagascar. Given the lack of a national legislation and the costly access to international certifications, some Malagasy actors create brands and define themselves their

[3] The organic agricultural movement (MAOCO) and the National Association of Organic Farmers (ANAO)

[4] In particular, the United Program for the Development (UNDP) and the Humanist Institute for Development Cooperation (HIVOS), a Dutch NGO.

[5] It is worth to notice that a law supporting organic farming exists (Law 8591 of 2007). This law includes many incentives for organic farming, such as tax exemptions, direct positive payments, specific credit and harvest insurance, but with exception of a positive payment program, this different incentives have not been put into practices yet.

standards. Thus the name "Landin' Itasy" (LI) stamps productions as silk and wild silk from an endemic species associated with natural forests, the *landibe*. This approach led by a regional platform of silk craftsmen (VMSL) and supported by NGOs CITE and SAHA, defends a collective brand with an internal process to define and control specifications. As a label of origin, LI aims to enhance the typicality of silk of the region Itasy, the local origin of silk cocoons and wild ones, and the local expertise of spinners, in particular to ensure the support of the local population to the objectives and activities of conservation of natural resources (Pierre, 2011). The label is designed to satisfy more demanding customers who are expected to increase (especially international tourists) by offering quality products valuing Itasy genuineness and sustainability efforts. Economic, social and environmental rules are included in the specification: the spinning technique (manual only), the original and genuine characters of inputs (natural dyes, local cocoons), the adoption of the principles of fair trade and good business management. Products that can be labeled are cocoons (necessarily from sustainably managed communal forests), floss silk and silk clothes. Their prices exceed 25 to 30% the prices of generic products, to reimburse the label and pay all contributors. In this case, promoters have two motivations: firstly, developing the silk value chain as a patrimonial Itasy activity; secondly, developing a value chain that would justify efforts of forest management, and generate resources for conservation instead of asking for public aid. But a problem is that wild silkworm is an endangered species and very rare in Itasy. Its valorization through a quality brand may increase unsustainably the demand and aggravate its rarity in the region but also in other zones, by leakage effect.

- ***Promotion by territory actors***

In the other case, the promotion of the label is done by conservationist-oriented actors such as the manager of a protected area (case of vanilla in Madagascar), or international conservationist associations (case of Rainforest Alliance in Costa Rica). In both cases, the environmental protection is the core objective in the promotion of the ecolabel.

In the ***case of organic vanilla inside the Mananara Park*** (MAB reserve) in Madagascar, the promotion has been carried out by a public actor: the Madagascar National Parks (MNP). The objective of the label is to support the commercialization of the products of the rural dwellers living around the park, in order to convince them about the advantages of conservation, and make them more actively involved into such conservation efforts. The MNP has a double strategy: one is by developing a well-known label (organic agriculture & fair trade) and the other is by launching a MNP brand[6]. Since 2003, as an emblematic pilot program, the strategy of the MNP consists in organizing farmers' cooperatives in the north part of Mananara Park and developing a relationship with private traders. Since there is a lack of specialized exporters, the environmental consultancy agency DEC (a technical adviser of MNP) changed its status in order to become an export society (Premium Species). Specialized in quality species exports, this trader has found a Swiss import company that is interested to import the product. In 2004, the association of the vanilla growers of Mananara, grouping 135 growers of 9 villages of the Mananara Park was created. In 2005, they obtained the organic certification from Ecocert. In 2008, the association became a cooperative, the KOMAM, which was constituted by 36 groups of growers and certified by FLO. In this case, the certification of

[6] The final objective of the MNP is to develop of large array of diversified products with MNP stamp, that comply firstly with international standards (Organic and Fair Trade), in order to increase the credibility of their products on the international markets, since they consider that the main bottleneck of their approach will be the limited market outlets.

local products is a way to increase their price and help dwellers to accept the conservation project.

The case of RA in Costa Rica. The RA label has been created as an initiative of different conservationist associations to promote the adoption of cleaner practices especially in agricultural sectors where intensive and polluting practices were developed. Created in 1987 in United States, the RA association settled in Costa Rica in 1989. In 1990, it became as an « Eco Friendly banana » program that created the first « Sustainable Agriculture Normative (SAN) ». This normative included 3 pillars: ecosystem conservation, fauna protection, and social issues. The promotion of the SAN is done by the RA association. The followed strategy has been to directly promote the label towards existing large food-processing firms in target countries, in order to ensure the development of the final demand. They also promote the EL by broadcasting information to producers throughout the country. In order to promote a rapid effect, they not only tend to promote RA to the small farms but also to larger farms that manage large areas of land, in order to get more ecological effects.

- ***Targeting***

Even if no spatial or producers targeting is included in the normative of the EL, the motivation and the strategy of the local promoter of EL lead to a targeting *de facto.* As such, in the Costa Rican cases where the promoters has been value chain actors (case of organic) or international conservations association (case of RA), there is no spatial targeting, whereas in Madagascar, the different EL (organic and LI) has been directed toward specific territories with conservation issue (Table 2a).

4.2. The mobilization by the producers and accessibility

The mobilization of the certification by the producers is different according to the producers' capacities to comply to the standard, with the interest they perceived from the change, and the accessibility of this certification. The analysis in the different cases reveals different patterns according to the label and the country (Table 2b).

Table 2b: Producers' motivations in ecolabels implementation

Case	Organic pineapple and coffee in Costa Rica	Organic vanilla in Madagascar	RA pineapple and coffee in Costa Rica	LI silk in Madagascar
Producers interested	Small farmers	Medium and large	Large	Small
Producers' motivations	Market opportunity and/or maintaining small farm (and environmental consciousness)	Opportunity to increase selling price of product	Market opportunity (and environmental consciousness) and a higher purchase price in coffee case	Opportunity to increase selling price of the product

Sources: Authors based on interviewed 2011

Indeed, Organic label was more developed by small producers of coffee in marginal production region in Costa Rica, whereas in vanilla in Madagascar, the main target is *de facto* medium size growers, as the KOMAM relationship with MNP firstly introduced a barrier to the entry for producers, with the setting of conditionality aside the standard of the label : the members should live in the MAB reserve and respect some criteria of professionalism

regarding vanilla growing and environmental ethics[7]. Thus, *de facto*, the promoters target the skilful vanilla growers, distant from the forest patch, that are the only that may access to the organic label.

In the case of LI, the process of creation of the label depends on VMSL platform, largely based on actors of commercialization and small craftsmen. The more influent agents of the regional value chain (great weavers in the cities) are not stakeholders of this platform, and small genuine weavers are not enough listen to. This label does not mobilize all the value chain agents and thus cannot develop on a large basis.

For RA label, even if all types of producers are showing interest in accessing certification, the majority of the certified producers are medium to large producers. In the coffee sector, the organic coffee developed mainly in marginal production zones in term of grain quality, whereas the RA label has been more adopted by cooperative from high quality coffee region (Faure et al., 2012).

5- Environmental and socio-economic effects of ecolabel local implementation

Comparing the evolution of producers' practices and the dynamics of land use in the different experiences of EL implementation, economic interests and environmental implication of EL development has contrasted among the cases (Table 3)

Table 3: Features of the study cases in terms of sustainable development

Cases	Organic pineapple and coffee in Costa Rica	Organic vanilla in Madagascar	RA pineapple and coffee in Costa Rica	LI silk in Madagascar
Economic interest at producers level	Price premium but insufficient to compensate reduction of productivity compared with conventional (coffee case) and offset production costs (pineapple case)	Price premium high but problem of distribution among the rural dwellers around the protected area : the slash-burning farmers are not vanilla producers	price premium (coffee) or not (Pineapple) but enable to maintain market access (coping with evolution of imports demand)	small price premium and arbitrary standards contested by many weavers
Environmental implications of EL adoption and development	Important changes in the producers practices at farm level	No changes in the practices at farm level but increased collaboration of a part of population in park supervision. But this has no results in the current context of weak legal institutions	Marginal changes in the practices at farm or landscape level	strengthening of the community management of the forest But aggravating also the pressure on wild silkworms populations

Sources: Authors based on interviewed 2011

For the organic agriculture in Costa Rica, the development of this label is limited, as well as its effect on development, since less that 2% of the total coffee area is under the label (by

[7] In particular, they should have at least 200 vanilla plants and a minimum of 5 years of experience in growing and processing vanilla, they also should demonstrate that they haven't been condemned for environmental offense.

2010), and less than 1% of pineapple area. If the organic coffee production enables to maintain small producers in marginal regions (along with fair trade certification) that enables to maintain good coffee prices, its interest has been reducing during the last 3 years. Indeed, with the raise of coffee price since 2010 at international level, organic coffee is less interesting in Costa Rica than conventional production techniques. Organic coffee yields a much lower productivity[8] than conventional coffee, whereas labor costs are higher. In this situation, we observe a switch of the organic farmers toward other label or sustainable practices less difficult to manage[9]. For the pineapple, as for coffee, the price premium is not anymore enough to cover the reduction of productivity and the higher costs that organic production schemes, and producers tends to quit from this production forms (Romero, 2011).

For the organic vanilla in Madagascar, the process of certification is rising. The rapid raise of members of the Cooperative since its creation illustrates a successful process. During the good years, the label enables to create a real added value taking into account that organic practice does not lead to extra cost since the conventional production practices already comply with organic normative. But some years with high prices on the global market, the demand for organic products decreases; the production is sold as conventional, which is provoking misunderstanding by the members of cooperative. Regarding environmental aspects, development of organic vanilla led to an increase of collaboration of local population in park supervision. Unfortunately, this better adherence is not very useful in the weak current state of legal institutions.

For RA in Costa Rica, motivations of producers are primarily of economic nature. It is primarily to benefit from an opportunity in response to the request of a buyer (pineapple sector), or diversify its product (in the case of coffee sector). The standards of this label are seen by producers as less demanding than organic farming in terms of change in practices, while still allows the use of certain pesticides and chemical fertilizers. Most large and medium interviewed producers (coffee, pineapple and banana) perceive the RA as an institution for the protection and conservation of the environment first. Producers who already comply with existing social and environmental legislations of Costa Rica do not need to make major changes in their production systems, or to make costly investments. However, the implementation of the certification still gives an opportunity to make some changes. Although certified producers receive no price advantage for their products (except coffee producers), they recognize that the RA label keeps access to those specialized markets, with consumers with high social and environmental concerns. In contrast, small pineapple producers have a different point of view. Many deem the certification process necessary and non-bureaucratic, but nevertheless want to leave this standard because: 1) the purchase price does not compensate the additional costs and efforts to obtain and maintain certification 2) there is no pressure of collectors to buy certified products, and 3) the risk is borne entirely by producers and is not shared by other industry players. Producers who are not certified deem certification too expensive and too bureaucratic to enter (Mora-Vega et al., 2012). Regarding environmental issues, the coffee production under RA label is an alternative to full sun production, while promoting the adoption of an agroforestry coffee production system. This scheme of production is more prone to provide higher local biodiversity[10]. For pineapple, the RA labeled production is mainly developed by large production units. If the adoption enables

[8] In Costa Rica, the average yield of organic coffee represents half of the average yield in conventional production (Haggar et Soto, 2010).

[9] They adopt labels such as RA, C.A.F.E. practices or the « sustainable », that allow us to use of chemical to control pest and mineral fertilizers, which is easier to manage than organic certified plantation.

[10] It worth highlights that all the producers are eligible to this label whatever is their location.

to change agricultural practices, there is no impact on the dynamic of pineapple development in the regions. Moreover, unlike coffee, the RA labeled pineapple enjoys no price premium (Mora-Vega et al., 2012).

Label Landin' Itasy. The label is an attempt to integrate into an already existing value chain, which is regarded as a modern chain with a well established reputation. At this stage, the development and access cannot be evaluated as the experience still in a preliminary phase of criteria's definition. Nevertheless, we can observe that the major players of the local industry (large spinners, weavers) ignore the dynamic of label that is targeting to the small producers of upstream (cocoon collectors and manual spinners).

Finally, comparing the environmental and social effect of EL implementation in their context, we can identify different factors that lead to observed effects (table 4). Firstly, we show that environmental and social effects depend on the agricultural and socio-economical reference situation. Hence, in Costa Rica where the use of chemicals in agricultural practices is very intensive, changes in practices due to EL adoption (in particular organic label) are important. Conversely, in Madagascar the marginal effects of organic label adoption is less enhanced as agricultural systems are very extensive in chemical uses. This can be explained by the economic limitations of producers. Secondly, we show that environmental and social effects depend on the actors and space targeting. Hence, in Costa Rica, organic label development led to important changes in practices per land unit, but its effect is limited at larger scale because the changes are performed mainly by smallholders. On the contrary, RA is less demanding regarding changes in practice at farmer unit, but as it is adopted by large estates, it is prone to generate major effect at territorial or global scale. In Madagascar, the patterns are different, with a limited intensity of changes by land unit, a limited number of producers involved representing limited land extension, environmental effect can be foster by the spatial targeting on some environmental problematic areas.

Table 4: Effect patterns of EL on environmental issue

Cases	reference level of practice intensity	intensity of changes per land unit with EL adoption	number of producers involved	area per producers involved	degree of spatial concentration of adoption
Organic coffee and pineapple in Costa Rica	+++	++	++	-	-
RA coffee and pineapple in Costa Rica	+++	+	+	++	-
Organic Vanilla in Madagascar	---	0	+	+	+
LI silk in Madagascar	---	+ /-	+/-	(n.r.)	+/-

NB: n.r. = Not relevant
Source: authors

6 – Limits of ecolabel in economic development and environmental conservation

6.1. Limits regarding economic development

The analysis of the implementation of the EL in our 4 cases studies enables to identify four main limits of EL approach regarding economic development.

The first limit is the incapacity of the EL to cope with the problem of stringent price volatility of agricultural products. Indeed, agro-export products such as coffee, pineapple and vanilla

are characterized by high annual and inter annual price volatility. For the growers, this volatility is one of the main problems they perceived and that is responsible for severe economic losses. In all the cases of EL analyzed, any mechanisms cope with this issue. This problem is particularly stringent in Costa Rican situation for both coffee and pineapple.

The second limit regarding economic effects of EL is the capacity to generate and translate a premium price for EL product that cover with the additional effort (and investment) that suppose the compliance to the standard. This problem is particularly clear in Costa Rica where in coffee, the existing premium does not cover extra costs that implies organic coffee production, or in pineapple, the RA label compliance no generates any price premium. But this premium increases in a low-income country like Madagascar.

The third limit of EL approach is the limit market demand for the EL product, which limits the amount of total production that producers can effectively sell with a premium price. This point clearly reduces the economic interest of EL adoption at farmer level. This situation is prone to occur in organic vanilla in Madagascar when international prices are high.

Finally, EL do not cope with problems of asymmetries between producers and downstream actors in the value chain. Thus, risk sharing regarding price volatility or demand evolution still for the producers, limiting them in their economic development.

6.2. Limits regarding environmental effects

Regarding efficiency of EL in dealing with conservation issues, several limits can be pointed out: i) the lack of additionality, ii) the lack of appropriate targeting regarding space and type of actors; iii) the lack of perenity effect; iv) the issue of the leakages, v) the problem of legitimacy of governance and economic development model of the EL.

The first limit of the EL is the limited additionality of the mechanism. Indeed, the additionality depends deeply on situation of reference in which the EL is developing. Thus, in the countries where the production system of reference is very intensive and is damaging environment such as in the Costa Rica, the adoption of the standard of an EL represents a change in practice. On the contrary, in countries where the production systems of reference have a law impact on environment, the additionality remains low. Anyway it could be useful as a way to prevent new environmental damaging practice to develop. This conclusion depends also of the criteria of evaluation of the environmental impact and the targeted ES.

The second limit of EL is the lack of clear targeting mechanism. Dislike the PES schemes that enables a targeting of beneficiary and territories, the EL by nature do not contains criteria's on farmers or spatial target. We show that a targeting occurs *de facto* due to the nature and strategy of the EL promoters, the socio-economic situation, the reference situation that determine the accessibility and intensity of the changes to be done to comply with standard. This targeting *de facto* cannot be the more relevant regarding the critical space to act or the local actors to influence. Hence, in the case of Costa Rica, where the EL implementation is carried out by promoters that are not directing toward specific area, the targeting de facto leads to a distribution very scattered of the production area under standard. This limits for instance the possible effect regarding biodiversity (where critical area are biologic corridors) or water services (where critical areas are defined according to hydrological functioning within watershed). In the case of Madagascar, where the promotion of EL is carried out in a territorial way by the promoters, the socio-economic condition led to a *de facto* targeting

process toward actors that have a low impact on the environmental issue. Indeed, in the organic vanilla of the Mananara park, the selection process of producers that derive from criteria defined by the KOMAM led to certified dwellers from villages far from the forest, that are those who deforested in the 70s and are nowadays the well of the region, and exclude the young dwellers that live near from the forest, and which precarious condition constitute a threat to the remaining forest patch.

The third problem is the permanence of the effects of the EL. This permanence of the effect of the EL is under question in both countries. It appears even more subject to discussion in Costa Rica, where the organic production does not generate additional incomes in comparison with the competitive conventional practices, especially international price are rising, leading to reduce price differential between ecolabel and conventional product. In coffee and pineapple, producers tend to stop to produce according to organic standards. However, we observe that even if they drop certification process, they often maintain some elements of the standards, that they consider less restrictive, which give to some extend a perenity of EL effect (through learning process).

The fourth problem is the risk of leakage. The risk of leakage associated with the EL depends on the economical, institutional and policy context. In Costa Rica, this risk is limited, as the development of RA or Organic label does not lead producers to develop not environmental friendly practices. In the case of Madagascar, the risk of leakage is higher due to the low capacity to enforce public regulation on natural resources management. In the case of LI the capacity to control the origin of the silk cocoon is limited and the development of the demand on the label, may lead to create an intensification of the harvest of cocoons outside the area, and without control which may affect natural resources.

The fifth problem concerns the legitimacy and quality of EL governance, and the issue of the label development. The quality and legitimacy of the governance system of the EL is a determinant for the economic model of the EL and its development (degree of adoption).Indeed, if the number of producers or area managed under EL standard is very limited at a certain scale, the effect at this scale will be very limited. And the capacity to incorporate a large number of producers or a large area, depend on the economic system of model of the label. The case of LI illustrate a case of emerging EL system with a system of governance that do not achieve a legitimacy since the main actors of the value chain have been excluded from the standards definition of the VMSL platform. Moreover, the economic model is based on the development of touristic demand for labeled silk whereas the touristic development is stagnating. On the contrary, the RA or Organic labels have developed trustful governance system. The definition of the standard is based on large consultation and expert debate that provide them with legitimacy. Regarding, economic model, RA show an example of sound system that enable to enlarge demand (though the strategy of promotion in large exports, and firm) that have a large market power and the setting of a level of restriction in their standard that enable a balance between effort and interest.

7 - Conclusion

The analysis of implementation process of EL in different countries shows that the effects of the label depend on the strategy of the local promoting actors as well as socio-economical and political context within which the labels are developing. As such, we differentiated two process of EL development according to the type of local promoter: value chain actors or conservation organization. In the first case, the motivation is mainly oriented toward market

access of producers and local development, whereas in the second case, promotion actors are conservation oriented. Thus, even if labels are not territorial approaches, they can be mobilized to promote conservation in specific territories.

EL mechanism to foster economic development is still limited as they do not cope with price volatility, risk sharing and actors asymmetries in value change. Regarding effects on environment and conservation, the efficiency of EL mechanisms is limited by a lack of additionality, a lack of appropriate targeting regarding space and type of actors; perenity of the effect limited by market fluctuation, risk of leakages, and problem of legitimacy of governance and economic development model of the EL.

In order to take advantage of label to foster conservation and development, it is recommended to adapt label approach to the natural, socio-economic reference context. It is also necessary to pay attention to the spatial and actors targeting, to the balance between the intensity of the change required by the EL and the local capacity of adoption, the sustainability of the economic model, and the quality and legitimacy of the governance system.

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