

Costa Rica's Payments for Ecosystem Services programme

Case study Module 2

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Ecosystems, poverty alleviation and conditional transfers

Guidance for practitioners

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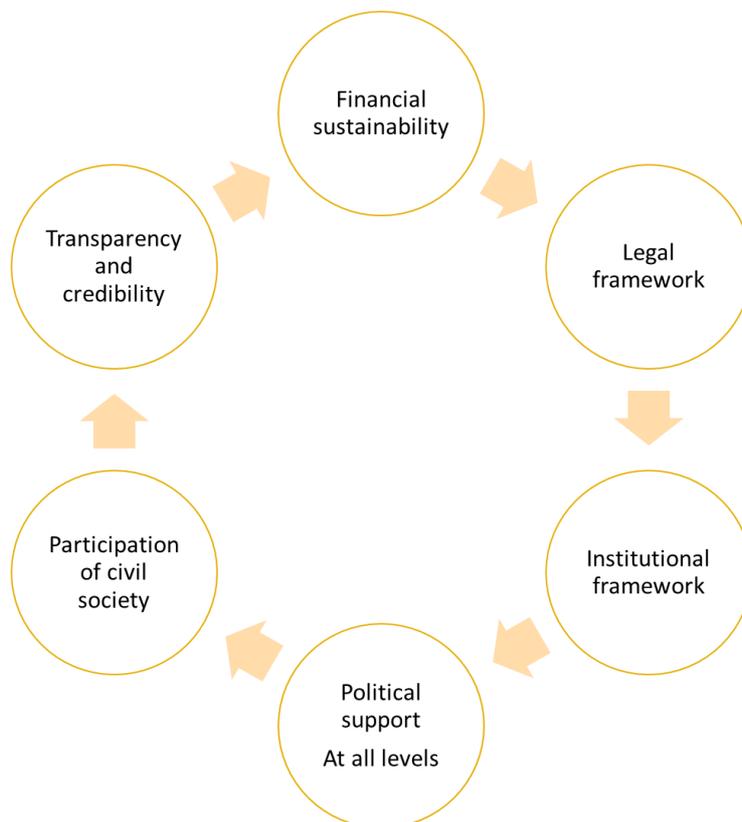


Evidence from the international research community shows that careful management of nature results in benefits to people's wellbeing. Poor people especially depend more heavily on the quality of the ecosystems and have less access to substitutes when they are degraded. Making meaningful impacts in the way ecosystems are managed requires governments to step in and scale up, but the evidence also shows that empowered communities can make strong calls to enact and implement change at the local level. Positive incentives like payments for ecosystem services (PES) and other forms of conditional transfers can provide important signals to enact this behavioural change into positive actions. Carefully designed, these incentives can also contribute to the wellbeing of people, especially poor and vulnerable groups. New tools emerge that can help with scaling up and dealing with inevitable trade-offs, but more efforts are needed to bring this information closer to those making decisions. This case study accompanies a [Guidance for Practitioners](#) that helps to bridge this space by: 1) making evidence accessible, bringing the latest evidence from research on PES in theory and practice with documented case studies written for practitioners; and 2) supporting capacity building to 'train the trainers', through teaching modules which can be used to promote capacity building of practitioners.

Costa-Rica's government-led payments for ecosystem services (PES) programme is probably the most iconic PES example. The programme bundles together the provision of four main ecosystem services: carbon sequestration, biodiversity protection, water regulation and landscape beauty. It makes direct cash transfers to private landowners for five-year contracts for different modalities of forest protection, reforestation, sustainable forest management and agroforestry. Following results from a 'conservation gap' analysis (forests with no protection at risk of change), the programme focuses on protecting these areas and improving connectivity between forests through biological corridors. Apart from giving priority to indigenous communities, the social focus of the programme is more of an added-on component that uses a priority filter for applications located in areas of low development.

Created by legislation in 1996, the programme is a mix of rules and regulations (for example, it is forbidden to cut primary forest) and positive rewards that invite stakeholders to respond to incentives and disincentives. The legal underpinning establishes the structure by which the PES programme secures funding, how it is managed and who is eligible to participate (see Figure 1).

Figure 1. Costa Rica's PES



Source: Authors' own.

Political support

PES emerged in 1995 from the convergence of various factors that led to the 1995 Forestry Law reform (Porrás *et al.*, 2012). It was perceived as a necessary incentive to carry out the increased level of restrictions to legal forest extraction. Emerging soon after the Rio and Kyoto conferences, the country had high expectations about the development of instruments for carbon reduction and biodiversity. The concept of 'payment for ecosystem service', as opposed to 'forestry subsidies', provided the Ministry of Finance with a loophole to bypass the heavy restrictions imposed by the structural adjustment reform in the country. At the same time, it provided a window of opportunity for small conservation groups to benefit from forest incentives.

PES has now been implemented for more than 20 years. During this time, it has experimented with various instruments for raising and delivering finance for conservation. Currently, most of its budget comes from public sources, which demonstrates long-term political support. The participation of the civil society has been instrumental in this programme, raising awareness of its importance and helping to secure funding when it has been threatened.

Sustainable financing

Financial resources come mostly from domestic sources through a combination of instruments:

1. **Fuel tax:** Initially as a percentage of collection and now a fixed annual amount, it is linked to carbon emissions (average US\$11.6m per year).
2. **Water tax:** Early one-to-one watershed agreements with hydroelectric companies gave way in 2006 to an allocation from water fees (25 per cent of collected revenue goes to PES, and 25 per cent to public parks and conservation areas). Average revenues from this source reached US\$3.6m between 2007 and the first half of 2010.
3. **Loans** from the World Bank to kick-start the programme, combined with some smaller grants, notably from the German Development Bank (KfW) and the Global Environmental Facility (GEF).
4. **Agreements with private and semi-private companies** interested in promoting forest protection for water protection, biodiversity conservation or landscape beauty in their areas (for example, the tourism sector, conservation groups).

To date, most of the funding for PES comes from the government, either through central budget allocation or as loan repayments to the World Bank (through Ecomarkets). Agreements with individual companies (CNFL, Florida Ice & Farm, and several hydroelectric companies) provide small amounts of financial resources (less than 2 per cent of all payments made since the beginning of the programme) but have been instrumental in creating demand and support for the water tax adjustment (which succeeded in unlocking significant new revenues). Over-the-counter sales of ES certificates (CSA) remain small but internally promising as a way of raising resources to invest at local level. One of the reasons why they have not taken off is their relative high transaction costs in relation to money raised, compared to the other sources, especially earmarking.

Table 1. Sources of finance for PES in Costa Rica (US\$ million)

Programme is continually experimenting with different financing strategies

Previous forest subsidy provides policy background. They are integrated with PES from 2005 onwards

Direct negotiation with HEP provides basis for water tax revamp (25% earmarked for PES). Large utility (CNFL) continues providing extra funding for works in their watersheds.

Government funding is the main source of funds. OTC sales (certificates) show the potential for internal markets but revenues collected still low.

	CAF-forest subsidy (1)	Gov budget	Ecomarkets WB loan	KfW grant	Hydro-CNFL	Beverage company FI&F	Hydro- various deals	OTC ES certificates	Total (adjusted, 2017 prices)	Total (unadjusted by inflation)
1995	1.36								1.4	8.3
1996	1.47								1.5	7.5
1997	1.63								1.6	7.3
1998	2.16	1.15							3.3	13.5
1999	1.45	2.20							3.6	13.4
2000	1.30	1.99							3.3	10.9
2001	1.23	2.31	0.65		0.07		0.01		4.3	12.7
2002	1.20	2.95	2.84		0.08	0.02	0.01		7.1	19.4
2003	0.96	1.34	2.84	1.65	0.15	0.02	0.02		7.0	17.4
2004	1.06	1.48	3.46	0.79	0.15	0.00	0.00		7.0	15.5
2005	0.21	1.56	3.54	1.04	0.20	0.02	0.02		6.6	12.9
2006		6.21	3.12	0.94	0.24	0.02	0.02		10.6	18.4
2007		7.73		0.83	0.26		0.06		8.9	14.2
2008		8.29		0.64	0.23		0.03	0.06	9.2	13.0
2009		9.34	4.21	0.30	0.29		0.05	0.16	14.2	18.6
2010		17.74	6.36	0.00	0.15		0.02	0.08	24.3	29.9
2011		16.85	9.67	0.26	0.60		0.02	0.01	27.4	32.1
2012		19.93	4.94		0.11			0.00	25.0	28.0
2013		19.99	11.18		0.16			0.24	31.3	33.4
2014		20.44			0.14			0.21	20.6	21.0
2015		26.27			0.32			0.20	26.6	26.8
2016		24.74			0.03			0.29	24.8	25.2
2017		28.85			0.02			0.004	28.9	28.9
Total	14.02	221.36	52.80	6.45	3.19	0.07	0.26	1.25	298.1	428.2
	5%	74%	18%	2%	1%	0.0%	0.1%	0.4%	100%	

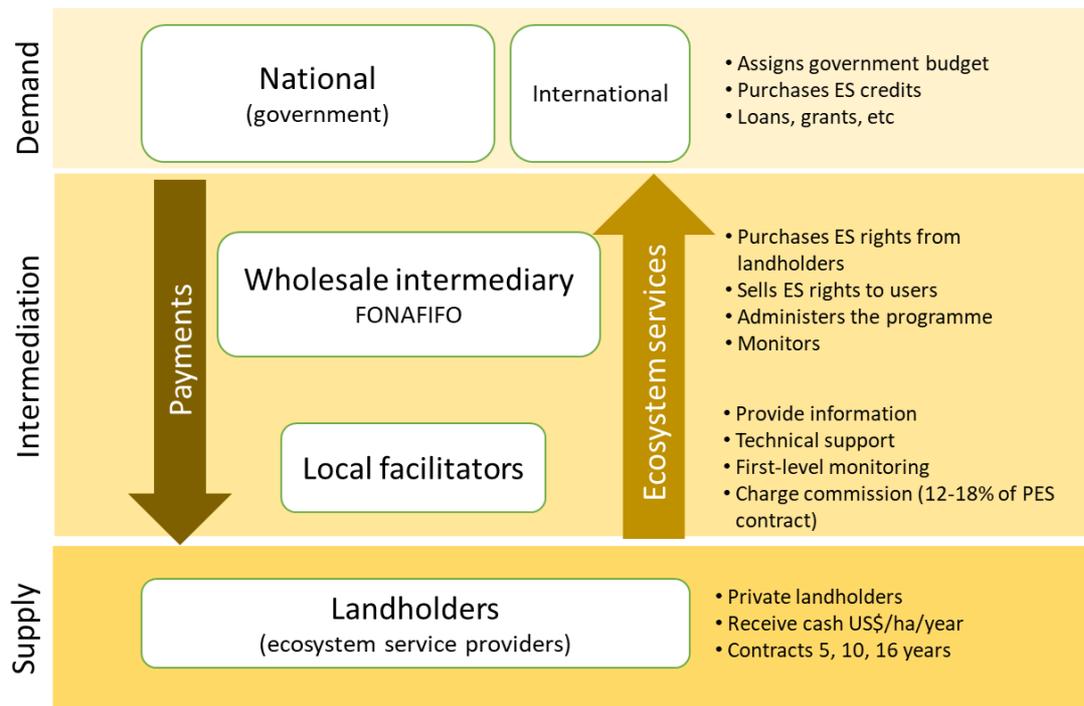
*Note: (1) Certificado *de abono forestal* (CAF) pre-dates PES and was a subsidy for reforestation. It overlapped with PES between 1998 and 2005 and has been phased out since 2006. Note (2) Totals appear as adjusted by inflation (in 2017 values), with an extra column with reported values not adjusted by inflation. Source: Authors', with data from FONAFIFO statistics.

Institutional set-up

The National Forestry Fund (FONAFIFO) is the primary intermediary charged with administrating the PES programme. It signs legal contracts agreeing land use with forest owners and monitors their compliance through local technical forestry facilitators (*regentes forestales*). In exchange for the payments, the landowners transfer the 'rights' to the ecosystem services to FONAFIFO, where they make up the wider portfolio of approved ecosystem services (ES) credits. FONAFIFO then sells some of these credits to its buyers.

Figure 2 presents the overall structure of the programme, which is discussed in the following sections.

Figure 2. Institutional set up of the CR PES programme



Source: Porras *et al.* (2013)

Systems and tools for effective implementation

Figure 3 summarises the backbone of Costa Rica's PES programme (Barton *et al.*, 2017; Chacón-Cascante *et al.*, 2012; Porras *et al.*, 2013).

Rules and regulation: The Costa Rican state has a constitutional obligation to protect the wellbeing of its people, including providing a healthy environment. Forest Law 7575 is anchored in this principle and provides the backbone of the PES programme. The law clearly recognises forest ecosystems as providers of biodiversity protection, water protection, landscape beauty and carbon sequestration. It also recognises that forest owners should be compensated for these services and sets the basis for implementation of the PES programme, through:

- allocating a proportion of fuel tax revenues, later updated with water tax revenues
- creating the institutions to manage the system
- allowing this institution to charge other beneficiaries of the environmental services to raise additional resources.

Ecosystem fund: All financial flows are managed by an independent system as a trust fund and rely on the banking system to capture and allocate payments.

National programme manager: The Law gives FONAFIFO the mandate to manage the PES programme. Acting as a wholesaler of ecosystem services, FONAFIFO administers the programme, approves payments, makes deals with other users, coordinates monitoring, and sets allocation criteria. Farmers can apply directly to FONAFIFO or through **local facilitators**

(for a fee), usually forest engineers (“*regents*”)¹. Legal advice and IT support is provided by separate units of experts. Interested landowners submit a pre-request² for participation, which is then evaluated against priority criteria. The programme has remained significantly over-subscribed from its beginning. FONAFIFO uses 7 per cent of its total budget for programme management.

Differentiated (actions-based) cash payments: Upon signing contracts, landowners receive conditional cash payments for a fixed period (between 5 and 10 years, depending on the activity). Payment modalities and amounts in 2017 are presented in Table 2.

Table 2. Payment levels by modality in Costa Rica PES

Modalities	US\$ (total)	US\$//ha/year
Strict forest protection (5-year contracts)	301 US\$/ha	60
General		
In water priority areas	376 US\$/ha	75
Reforestation		
Fast growing species (10-year contract)	1135 US\$/ha	113
Medium growth rate species (16-year contract)	1337 US\$/ha	84
Native species (16-year contract)	2005 US\$/ha	125
Natural regeneration for protection, and for timber production (5-years contracts)	193 US\$/ha	39
Sustainable forest management (5-year contracts)	235 US\$/ha	47
Agroforestry (5-year contracts)	US\$ 2/tree	0.3
General		
Coffee/ native species	US\$ 2/tree	0.5

Source: FONAFIFO, www.fonafifo.go.cr/psa/modalidades_psa.html.

Eligibility criteria (a combination of environmental and social criteria) are published annually. Those who meet the criteria must present a forest management plan, validated by a registered forest technician, satellite photos of their property, and complete several administrative processes. Farmers can pay an intermediate organisation to help with the application, a capped charge of 18 per cent of the PES received.

Monitoring and evaluation include several activities: field visits from regional PES staff to farms, desk reviews of forestry regents’ reports and unannounced field audits from PES staff. IT systems, such as GIS and SIAP, help to manage and monitor contracts and provide transparency. All information is available online (www.fonafifo.co.cr). The programme is evaluated periodically and is continually analysed and studied by researchers from all over the world. Feedback channels facilitate the uptake of some of the results, although progress can be slow. The programme publishes clearly defined protocols every year, providing the opportunity to review and adapt.

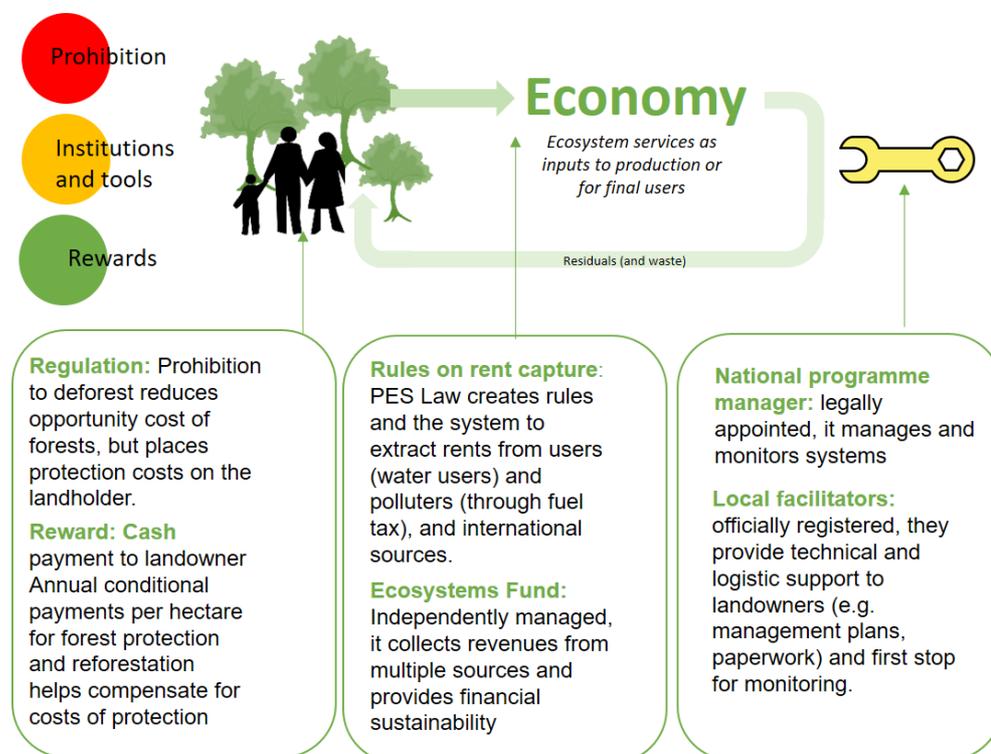
Links to other economic sectors: The country’s new natural capital accounts for forest, land, water and emissions will provide important data to link the PES programme design and evaluation to the performance of other sectors in the economy (Porrás *et al.*, 2016a; WAVES, 2016). The ‘rules in use’ affecting programme requirements also link to institutions in sectors like health and inland revenue (participants must be up to date with health and pension

¹ PES participants must contract an officially registered forestry engineer (“forestry regent”) who provides technical support to access the programme, ensures compliance and monitors in exchange for up to 18 per cent of PES payment. Reports can be reviewed by PES staff and if participants are at fault, they will be charged a penalty and the engineer will be reported.

² http://www.fonafifo.go.cr/psa/formularios/Sol_PSA-SAF.pdf

contributions as well as taxes). Through agroforestry, PES is an important incentive to promote the climate-smart agriculture agenda (World Bank *et al.*, 2015).

Figure 3. The legal ‘backbone’ of the Costa Rican PES



Source: Authors' own.

Ability to demonstrate impact

Since its inception in 1997, the programme has signed almost 16,500 contracts with private landholders, representing a cumulative disbursement of approximately US\$380 million. Almost 90 per cent of land covered has been for strict forest protection (over one million hectares), and about 70,000 hectares have received payments for reforestation, and 30,000 for sustainable forest management. The programme has enabled planting of 6.8 million trees (see Table 3).

Table 3. Coverage of Costa Rica PES between 1997 and 2016

Description	Amounts
Forest protection	1,050,135 hectares (90 per cent of total area receiving PES)
Forest management	30,575 hectares
Reforestation	69,889 hectares
Natural regeneration	19,711 hectares
Totals ha by 2016	1,170,310 hectares
Total trees in agroforestry	6,824,171 trees
Number of contracts	16,498 trees
Funding allocated - cumulative 1997-2017	US\$ 412.4 million (unadjusted by inflation) US\$ 295.3 million (in 2017 prices)

Source: FONAFIFO statistics.

The additionality of the programme has often been questioned, and impact evaluations of the first part of the programme found that it had little impact on reducing deforestation rates (Robalino *et al.*, 2011; Robalino *et al.*, 2008; Sánchez-Azofeifa *et al.*, 2007). Studies under Ecomarkets³ have been very useful in revising performance and proposing strategies to improve effectiveness; for example, increasing targeting by focusing on conservation gaps and biological corridors, improving monitoring, and removing barriers to participation of small and medium landholders (Porrás *et al.*, 2013).

Social impacts: The programme is aimed at small and medium-sized properties and makes payments with a minimum of one hectare and a maximum of 300 hectare. Indigenous groups receive significant resources from the programme, mostly for forest protection, representing one of the main sources of cash in their economies. Apart from indigenous groups, most of the payments are captured by relatively wealthier landowners (see Porrás *et al.*, 2013 and Lansing, 2017).

Targeting small properties does not necessarily result in poverty alleviation: Despite high claims of promoting rural development, the programme has struggled to make important impacts on poverty alleviation. The change in the agrarian model in Costa Rica complicates issues further, as it decouples the idea of 'small property' from 'poor households'. A recent analysis of household data for smallholder households enrolled in PES shows that they “tend to be older, wealthier and have access to non-farm salaried income” (Lansing, 2017). Previous studies also show that geographic targeting using a low social development index also fails to benefit less wealthy participants, as most contracts still go to large, wealthier landowners with only a small proportion trickling down to the less wealthy (Porrás *et al.*, 2013). Lansing’s study shows that smallholders on state agrarian reform lands — which would be considered poor — are less likely to enrol in PES.

The programme has undergone different stages, adjusting its implementation criteria in response to ongoing feedback. Early evaluations of the programme found little impact on reducing deforestation rates because most contracts were in areas with low deforestation rates and low opportunity costs (Arriagada *et al.*, 2010; Robalino *et al.*, 2011; Sánchez-Azofeifa *et al.*, 2007).

Lessons

This is the first national level programme making direct cash rewards for ecosystem services. Its legal foundations allow it to access a variety of funds, from government allocations to deals with the private sector (national and international). Despite this, the programme remains oversubscribed and underfunded. The programme uses preference criteria to allocate contracts, published annually as ways to target participants and reach their objectives. This introduces flexibility in the design and the ability to take account of feedback. The programme does not have an explicit social component. Most owners of land in Costa Rica are relatively better off than those without land. Within this group, however, the emphasis on protection contracts further excludes those who derive livelihoods from their land (absolute protection is required). Despite being oversubscribed, land prices in Costa Rica are generally increasing, reducing the competitiveness of the PES transfer in those places where forests are most at risk of change. PES needs to work better with other mechanisms and regulations and improve their target areas where the payment can lead to a change in behaviour.

³ See summary here: [Costa Rica Improves the Efficiency of its Payment for Environmental Services Program](#)

References

- Arriagada, RA, Ferraro, P, Silis, E, Pattanayak, S and Cordero, S (2010) Do payments for environmental services reduce deforestation? A farm level evaluation from Costa Rica. *Land Economics* 88 (2):382–399.
- Barton, DN, Benavides, K, Chacón-Cascante, A, Le Coq, JF, Quiros, MM, Porras, I, Primmer, E and Ring, I (2017) Payments for Ecosystem Services as a Policy Mix: Demonstrating the institutional analysis and development framework on conservation policy instruments. *Environmental Policy and Governance* 27 (5):404-421.
- Chacón-Cascante, A, Ibrahim, M, De Clerk, F, Vignola, R and Robalino, J (2012) Costa Rica: National level assessment of the role of economic instruments in the conservation policymix. CATIE / NINA.
- Lansing, DM (2017) Understanding Smallholder Participation in Payments for Ecosystem Services: the Case of Costa Rica. *Human Ecology* 45 (1):77-87.
- Porras, I, Alterio, H, Vardon, M, Pagiola, S and Bastad, K (2016) Showing the worth: NCA and the design of payments for ecosystem services. The World Bank, Washington D.C.
- Porras, I, Barton, DN, Miranda, M and Chacón-Cascante, A (2013) Learning from 20 years of Payments for Ecosystem Services in Costa Rica. International Institute for Environment and Development, London.
- Porras, I, Miranda, M, Barton, DN and Chacón-Cascante, A (2012) De Rio a Rio+: Lecciones de 20 años de experiencia en servicios ambientales en Costa Rica. International Institute for Environment and Development, London.
- Robalino, J, Pfaff, A and Villalobos, L (2011) Assessing the impact of institutional design of payments for environmental services: the Costa Rican experience. *Ecosystem services from Agriculture and Agroforestry: Measurement and Payments*, Rapidel, B et al. (ed.). Earthscan Press.
- Robalino, J, Pffaf, A, Sánchez-Azofeifa, A, Alpízar, F, León, C and Rodríguez. CM (2008) Deforestation impacts of environmental services payments. Costa Rica's PSA Program 2000-2005. In: *Environment for Development Discussion Paper Series*, Washington D.C.
- Sánchez-Azofeifa, A, Pfaff, A, Robalino, J and Boomhower, J (2007) Costa Rica's Payment for Environmental Services Program: intention, implementation, and impact. *Conservation Biology* 21 (5):1165-1173.
- WAVES (2016) Costa Rica: WAVES Country Report 2016. The World Bank, Washington D.C.
- World Bank, CIAT, and CATIE (2015) Climate-Smart agriculture in Costa Rica. *CSA Country Profiles for Latin America Series*. The World Bank Group, Washington D.C.