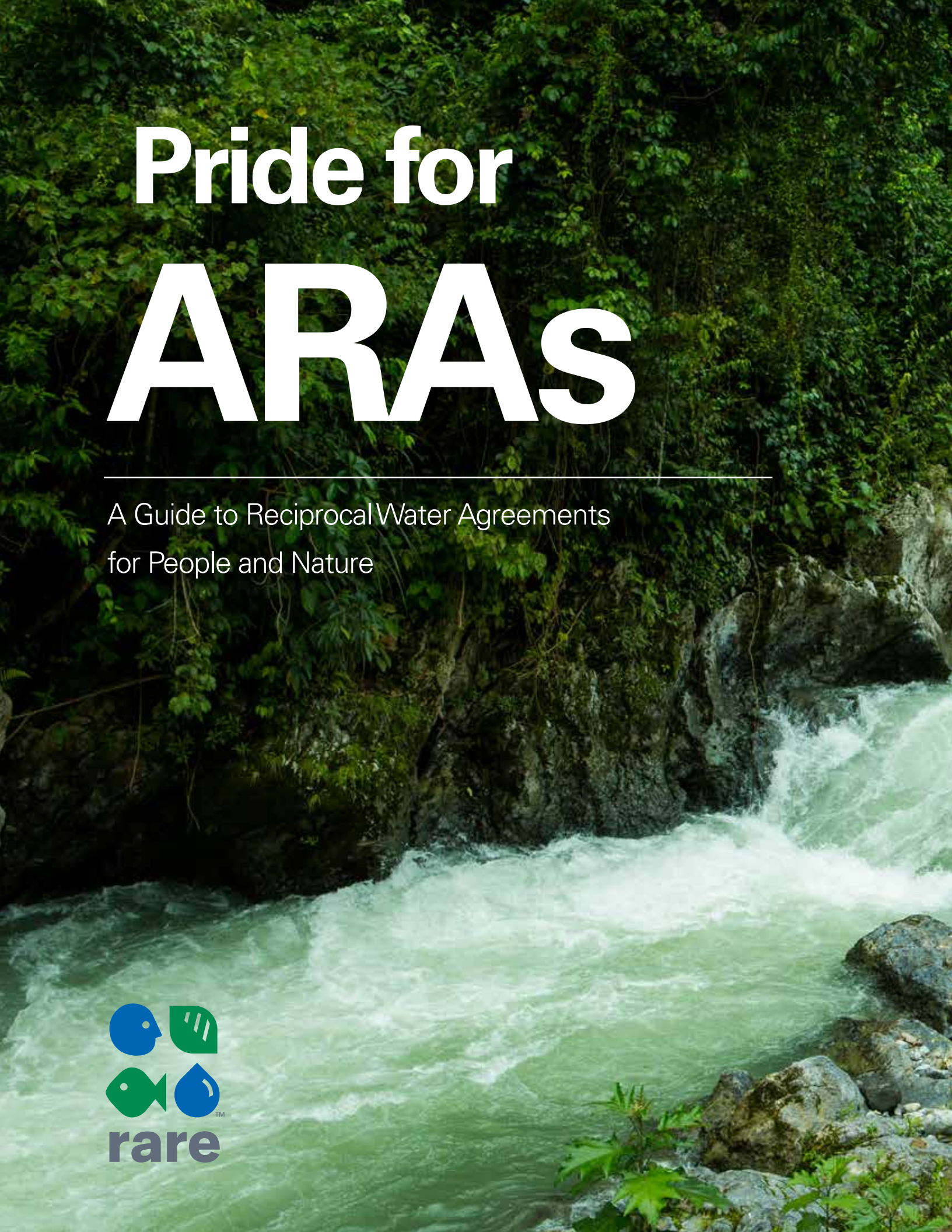


Pride for ARAs

A Guide to Reciprocal Water Agreements for People and Nature

rare™

Pride for ARAs:

Editors
Natalie Rodríguez-Dowdell, Ítala Yépez-Zabala, Kevin Green and Elizabeth Calderón-Villela

Authors
Sandra Conde, Oswaldo Contreras, Amielle DeWan, Kevin Green, Alan Hesse, Namir Nava, Natalie Rodríguez-Dowdell and Itala Yépez-Zabala

Acknowledgements
This guide is the result of a collaborative effort between many of Rare's staff and partners. In addition to the editors identified above and the numerous chapter authors, it was shaped in particular by the contributions of a number of people, including Keith Alger, Nigel Asquith, Rafael Calderon and Alissa Moen. We would like to thank all of our colleagues in Rare's Latin America Region who have contributed to building and improving our Pride for ARAs Campaigns, as well as Robert Yaguache for his many contributions to the process during his tenure at our organization.

Nothing described in this report would be possible without the pioneering efforts of Rare's colleagues at Fundación Natura Bolivia, and of Rare's many partners across Latin America, including but not limited to: Empresa Pública Municipal de Telecomunicaciones, Agua Potable, Alcantarillado y Saneamiento de Cuenca (ETAPA EP), Naturaleza y Cultura Internacional (NCI), Fundación Ecológica Arcoíris, Instituto del Bien Común, Asociación Civil Caritas Jaén, Asociación Peruana para la Conservación de la Naturaleza (APECO), Unidad de Parques Nacionales Naturales de Colombia, Parque Nacional Natural Farallones del Cali, Corporación Autónoma Regional del Guavio (CORPOGUAVIO), Fundación Natura Colombia, Fundación ProAves Colombia, Comisión Nacional de Áreas Naturales Protegidas (CONANP)-Dirección de la Reserva de la Biósfera Sierra de Manantlán, Niños y Crías, A.C., Empresas Municipales de Cali (EMCALI EICE ESP), Corporación Autónoma Regional del Valle del Cauca (CVC), Aguas de Buga S.A E.S.P, Mancomunidad del Río Mira, Consorcio Público de Gobiernos Autónomos Descentralizados de la Cuenca del Río Jubones, Empresa Pública Municipal de Agua Potable, Alcantarillado y Saneamiento Ambiental del Cantón Azogues (EMAPAL), Entidad Prestadora de Servicios y Saneamiento Moyobamba S.R.Ltda (EPS Moyobamba), Conservation International, Municipalidad Provincial de Jaén; and the Pride for ARA campaign coordinators, both former: Marco Bustamante, Luis López Jaramillo, Maritza Azanza, Cesar Raúl Laura, Helder Aguirre, Maritza Tovar, Jaime Millán, Javier Mancera, Claudia Céspedes, Heidy Valle, Paulina Pinto, Jimmy Leonardo Cuenca Satama y Georgina Vidriales Chan; and current: Verónica Elías Vázquez, Luis Gabriel Hernández Puch, Claudia Marcela Jiménez Millán, Harold Adrián Sánchez Marín, Angélica María Gil Villegas, Silvio Tomás Castro Reina, Edwin Marcelo Encalada Paguay, María Isabel Quintuña Cárdenas, Anselma Zumaeta Soplín, Rina Gissela Gamarra Tananta, Janner Javier Valderrama Tapia, Edgar Alfonso Largacha González, Isabel Cristina Echeverri Álvarez, Mónica Andrea Rivera Suárez, Juan de Jesús Salazar Wagner, Adriana Patricia Ramírez Delgado, Ramiro Palma Meza y Wilson Fernando Parra Africano.

We would especially like to thank all the landowners and water users from the Pride for ARA campaign sites who enthusiastically participate in the campaigns and lead the way for biodiversity conservation in their communities. In addition, we would like to thank the Pride for ARA program's advisory council for their constant advice and collaboration to improve our conservation results. Finally, we would like to thank Gloria Suárez from CVC for leading the way within her organization to make the latest cohort of Pride for ARA campaigns possible.

We would especially like to mention Gina Julieta Marín Ospina, who left us early in her life but inspired us through her commitment to conservation—and who continues to inspire us through her legacy.

We would like to thank Rare's staff and partners, the campaign managers, the communities and everyone else involved for your tireless enthusiasm and commitment to inspiring change so that both people and nature can thrive.

Citation

Rodríguez-Dowdell, N., I. Yépez-Zabala, K. Green, and E. Calderón-Villela, eds. 2014. *Pride for ARAs: A Guide to Reciprocal Water Agreements for People and Nature.* Arlington, VA: Rare.

This document is an output from a project funded by the UK Department for International Development (DFID) and the Netherlands Directorate-General for International Cooperation (DGIS) for the benefit of developing countries. However, the views expressed and information contained in it are not necessarily those of or endorsed by DFID, DGIS or the entities managing the delivery of the Climate and Development Knowledge Network, which can accept no responsibility or liability for such views, completeness or accuracy of the information or for any reliance placed on them.

About Rare

Rare inspires change so people and nature thrive.

Conservation ultimately comes down to people—their behaviors toward nature, their beliefs about its value, and their ability to protect it without sacrificing basic life needs. And so, conservationists must become as skilled in social change as in science; as committed to community-based solutions as they are to national and international policymaking.

Rare trains local conservation leaders all over the world to change the way their communities relate to nature. Our signature method is called a "Pride campaign"—so named because it inspires people to take pride in the species and habitats that make their community unique—while also introducing practical alternatives to environmentally destructive land use practices.

rare.org

Table of Contents

Foreword

Culture shapes how we live in community, informing our principles, values, attitudes, knowledge, behaviors. These elements in turn determine how we respond to issues of the local environment, whether positive or negative. In order to address these issues, we must first grasp the very value placed on natural resources and the environment—by both the individual and the group.

As the Chilean economist and environmentalist Manfred Max Neef said, "We have reached a point in our evolution in which we know a lot. We know a hell of a lot. But we understand very little. The point is that knowledge alone is not enough, that we lack understanding," and that problems cease to exist when they are understood.

In this sense, Pride campaigns for reciprocal water agreements are a way of addressing not just one but many realities: from creating (or re-creating) the spaces, both literal and figurative, that show up the gaps and strengths of a specific community, to defining and seeking agreement on matters of conservation and restoration from those who benefit from the natural environment.

Pride campaigns also help establish cooperative community networks, promote the recovery of local knowledge and experience, build capacity to interact with public and private institutions, and help identify and implement sustainable strategies and models.

Rare has been promoting and transferring the Pride methodology and training conservation leaders worldwide. In the case of the Corporación Autónoma Regional del Valle del Cauca in Colombia, Rare has been training officials so that they, in turn, apply conceptual, methodological and human elements to facilitate and generate processes that inspire communities to value, appreciate and respect their sources of water, their wildlife and flora, and the quality of their soil and air to prevent or reduce the impacts caused by behaviors that destroy their natural resources.

The effort to generate a guide for the Pride for ARAs methodology has resulted in an opportunity to help understand that conservation involves everyone. We invite you to read this guide so that the social, cultural, economic and, of course, environmental elements are taken into consideration when implementing conservation actions that contribute to a better quality of life and especially to help us agree that "yes, we can."

Gloria Berenice Suárez-Vera
Profesional Especializada
Dirección de Gestión Ambiental
Corporación Autónoma Regional del Valle del Cauca- Colombia

Chapter 1

Introduction

Kevin Green and Natalie Rodríguez-Dowdell

Global population continues to grow, and with it, the world's demand for clean water rises even faster (see figure 1). Economic growth and human development are increasing pressures on water resources and on the surrounding ecosystems responsible for delivering a reliable, clean supply of water (UNDP 2006; Hassan, Scholes, and Ash 2005; TEEB 2010). Perhaps nowhere is this truer than in the world's 34 biodiversity hotspots—biogeographic regions occupying only 2.3 percent of the earth's land area but holding 50 percent of its threatened mammals and 79 percent of threatened amphibians (Mittermeier *et al*. 2005). The Tropical Andes and Mesoamerican hotspots alone contain 8.4 percent of the world's endemic plants and 9.9 percent of its endemic vertebrates, making these regions two of the hottest hotspots on the planet (Myers *et al*. 2000).

In spite of such biological significance, or in many cases because of it, the fragile ecosystems within these global hotspots are facing unprecedented threats, ranging from human demand for resources to global climate change. The tropical cloud forests and parámo ecosystems found throughout the tropical Andes region have among the highest rates of endemism of any global hotspots; however, they also suffer from some of the highest deforestation rates in the world (Myers *et al*. 2000). These piedmont and high-altitude forest landscapes contain a vast diversity of microclimates.

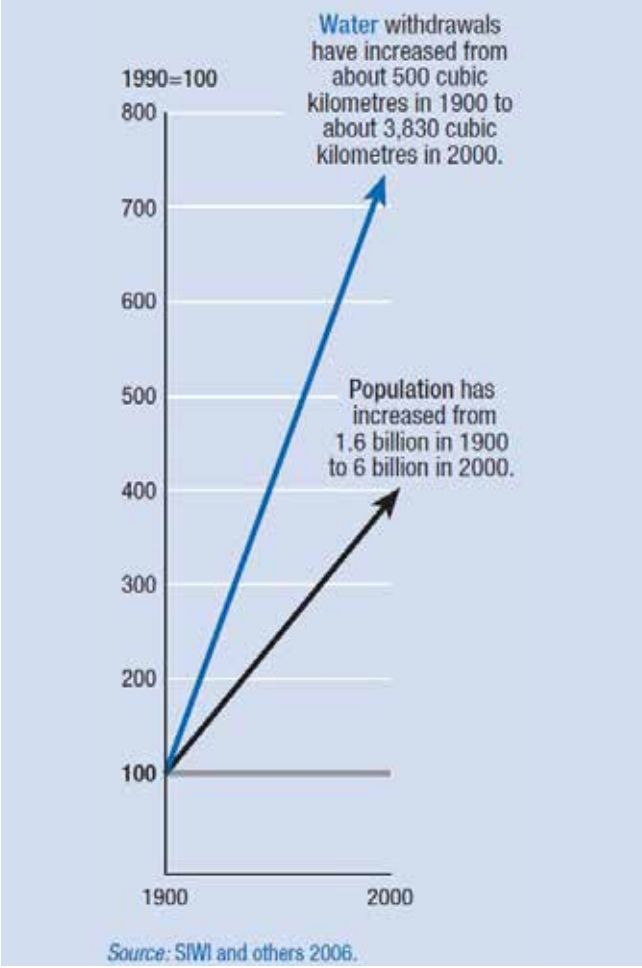


Fig. 1. Growth in world water demand compared to population growth, since 1900 (UNDP 2006).

But because they also have abundant rainfall, and human populations are increasingly seeking their rich soils for agriculture, threatening the critical biodiversity habitats within them and, ultimately, undermining the productivity of the land itself.

The traditional approach to conserving biodiversity and supporting ecosystems has focused primarily on the design of strictly exclusionary (at least in theory) biodiversity reserves and protected area regulations. These largely discount the necessity of replicable solutions to conservation that align social, cultural and economic drivers of human behavior with biodiversity and natural resource conservation objectives. Protected areas now cover more than 10 percent of the planet's land area (Cox 2001). Although there is broad consensus that the biodiversity crisis is spiraling out of control, there is nearly as much consensus that protected areas are insufficient to address the issue (Ervin 2003; Hayes 2006; Caro and Scholte 2007).[1]

The natural environment provides abundant goods that nourish and sustain human life. Many of these goods, such as food and timber, are bought and sold constantly in local and global markets. In addition to these goods, healthy natural ecosystems deliver numerous services that are equally essential to supporting human life. These "environmental services" comprise the seemingly immeasurable, but often less tangible, benefits that nature provides to humanity, including protection of biodiversity, carbon sequestration, water filtration, and even simple aesthetic enjoyment—to name just a few (Daily 1997; Boyd and Banzhaf 2006). Nonetheless, healthy ecosystems across the globe are in steep decline and with them the promise of many environmental services. Ultimately, the problem of environmental service provision results from an absence of adequate mechanisms that allow stewards of valuable environmental assets to be compensated for the value of the services they provide.

1. Although some recent studies have found protected areas to be more effective at conserving wildlife than areas with no protection at all (Bruner *et al.* 2001; Stoner *et al.* 2007), they admit that the level of success remains well below what is minimally necessary. Protected areas, therefore, are perhaps necessary but not sufficient solutions to the challenge of sustainable natural resource management and biodiversity conservation.

Since the 1990s, the payments for environmental services[2] (PES) approach has become an increasingly popular method of conserving watershed hydrological services, connecting the upstream service providers with downstream service users (Postel and Thompson 2005; Kosoy *et al*. 2007; Bond and Mayers 2010). Hydrological services that forests and natural ecosystems supply to watershed regions include: regulation of quantity and timing of water flows; control of soil erosion and sedimentation; maintenance of aquatic habitats; and maintenance of water quality and availability for domestic use (Bishop and Landell-Mills 2002; Dudley and Stolton 2003; Brauman *et al*. 2007).[3]

The logic of PES is simple: downstream users make payments to upstream landowners and managers (i.e., farmers, ranchers, or protected area administrators) that make conservation more financially attractive than other land uses (Engel, Pagiola, and Wunder 2008). By receiving direct compensation for the supply of environmental services, land users acquire a greater incentive to incorporate these services into their land-use decisions (Pagiola 2002). National governments such as those of Costa Rica, China and Mexico have developed government-led PES schemes to compensate individual landowners with various economic incentives for maintaining their upland forest (Asquith 2014; Muñoz-Piña *et al*. 2008; Stanton *et al*. 2011). At the same time, on a smaller scale, privately funded schemes have emerged at the watershed or municipal scale in which private entities fund direct payments upstream (Asquith 2014; Bennett, Carroll, and Hamilton 2013; Stanton *et al*. 2011).

More recently, a "third way" (Asquith 2014) known as *reciprocal water agreements (acuerdos recíprocos por agua*, or ARAs, in Spanish) has been pioneered in Bolivia, Colombia, Ecuador, Mexico and Peru (Asquith, Vargas, and Wunder 2008; Martinez, Green, and DeWan 2013). ARAs are based on the same fundamental principles of more traditional PES—that forest protection and improved land management upstream can deliver benefits to the water supply downstream, and that downstream beneficiaries can contribute to that protection. But ARAs are locally designed, financed and managed, and focus more on social contracts based

2. The approach is often referred to as "payments for watershed services" for programs specifically designed to deliver watershed hydrological services to downstream users. In other words, payments for watershed services (PWS) is a particular form, or subset, of payments for environmental services (PES).

3. It is important to point out that empirical data on the affects of afforestation on overall water yield have often generated ambiguous and inconclusive results, sometimes pointing to actual decreases in water yield (Buytaert *et al*. 2006). However, this does not say anything about the effects on water quality or timing of delivery, where the scientific consensus seems to remain in favor of afforestation.

on traditional norms of risk-sharing and reciprocity than on economic contracts seeking to overcome clearly articulated opportunity costs (Asquith 2014). The approach was initially cultivated in the early 2000s in the Los Negros and Comarapa valleys of Santa Cruz, Bolivia, by the environmental organization Fundación Natura Bolivia (Asquith, Vargas, and Wunder 2008). The model has continued to evolve and improve over the past decade. In 2008, Rare, along with specialists from Natura Bolivia and other partners, implemented the first "Pride for ARA" campaigns in Colombia, Ecuador, Peru and Bolivia. Rare and local partners have since scaled the approach to 22 sites, in Colombia, Ecuador, Mexico and Peru.

The goal of this guide is to systematize the Pride for ARA methodology based on experience across Latin America for the benefit of practitioners, donors and policymakers alike. Toward this end, chapter 2 explains in detail what comprises an ARA; chapter 3 describes the potential of this instrument for biodiversity conservation and climate compatible development; and chapter 4 explains the fundamental components of an ARA, drawing on practical examples from the field. Chapter 5 explains the indispensable role of community participation and social marketing in building and implementing an ARA, while chapter 6 presents the steps to establishing an ARA. Finally, chapter 7 presents public policy implications and highlights examples of relevant legislation from the diverse countries where Pride for ARA campaigns have been implemented. Chapter 8 wraps up with conclusions. Several chapters draw from real cases to exemplify diverse points and help practitioners interested in Pride for ARA campaigns.


ÁREA DE
PROTECCIÓN DE
MICROCUENCA
Propietario: Lic. Franklin Guevara

Chapter 2

Reciprocal Water Agreements (Acuerdos Recíprocos por Agua)

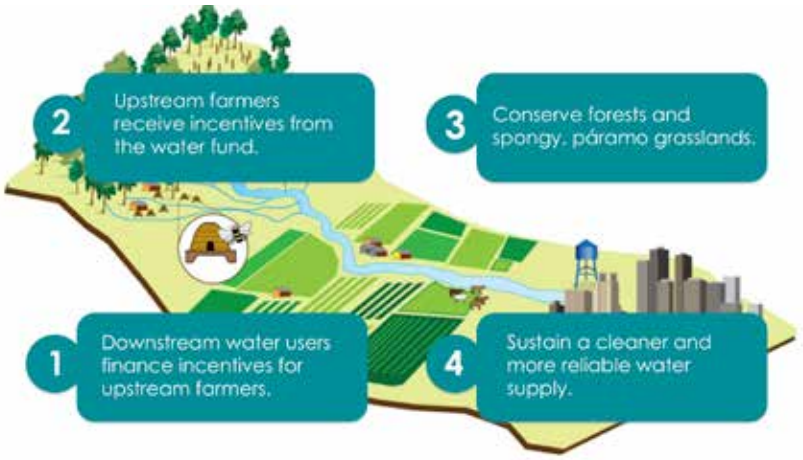
Alan Hesse and Kevin Green

Beginning in the late 1990s, the governments of several Latin American—including Costa Rica, Ecuador, and Mexico—decided that providing environmental services such as carbon storage, water filtration and regulation, biodiversity protection, and even maintenance of scenic beauty was important enough to begin paying landowners to sustainably manage their forests. Costa Rica, for example, established the National Fund for Forest Finance (FONAFIFO) in 1997 to begin contracting with landowners to adhere to sustainable forest management plans that stipulate conserving existing forest or planting new timber stands (Pagiola 2008). In 2006, annual payments from FONAFIFO averaged US$140/acre (or roughly US$350 per hectare) (Asquith 2013). Between 1997 and 2008, Costa Rica spent US$126 million on environmental services payments, funded by taxes and tariffs, multilateral loans, and overseas development assistance (Stanton *et al*. 2011). Many other countries in Latin America and throughout the world have followed similar strategies. Between 2003 and 2008, Mexico's National Hydrological Payments Program paid for the protection of more than 1.5 million hectares. A 2012 report from the environmental think tank Forest Trends tracked more than 200 active "watershed payment" programs on six of seven continents (Bennett, Carroll, and Hamilton 2013).

The growing popularity of payments for watershed services (PWS) programs is no doubt a product of their enormous potential to connect the demand and supply of healthy ecosystem functions in order ultimately to deliver many crucial services relied on by humans. But not all watershed payment programs are created equal. Heavily centralized programs usually have less direct administration and allow landowners to select which parts of their land to enroll under sustainable management plans. When possible, landowners are thereby more likely to select parcels that were not under threat of deforestation anyway (Asquith 2013). Payments tend to be standardized, so landowners receive the same benefit, usually in the form of cash, for any given acreage. And perhaps most important, local stakeholders are generally absent from the decision-making process, leading not only to potentially flawed design but also to the risk that agreements are viewed as one-off economic transactions that are only as good (or as lasting) as their market value (Asquith 2013). Providing environmental services depends on l*ong-term* protection of healthy ecosystems (after all, forests take a very long time to grow), for even one year in which a better economic opportunity presents itself can thrust a project back to its starting point or worse.

What is an ARA?

Reciprocal Water Agreements



Under reciprocal water agreements, landowners, water users and local authorities within a particular watershed work together on a simple, local solution to conserve forests and other ecosystems that regulate water provision in key watersheds. Pioneered by Fundación Natura Bolivia in 2003 in the Los Negros watershed, acuerdos recíprocos por agua (ARAs) are grounded in the basic theory of a localized payment for watershed services program, in which downstream water users, desiring a cleaner and more reliable water supply, pay a fee in order to finance incentives for upstream farmers and landowners to sustainably manage their forest and páramo, thus providing the essential environmental services required to deliver that water supply. ARAs ensure good quality and regularity of water flows for diverse users (e.g., domestic sector, agricultural sector, hydro-electrical plants), through a clear investment in watershed protection and on a foundation of reciprocity among stakeholders.

The ARA approach includes three core elements:

- Permanent financial mechanism
- Local institutionalization
- Long-term agreements that generate additionality

A fundamental difference between ARAs and other watershed payment programs is that ARAs do not involve cash payments. Rather, incentives are provided exclusively in the form of non-cash, in-kind payments, including materials for improved land management, such as barbed wire and fencing, as well as inputs for alternative income-generating activities that are typically selected by the beneficiaries themselves. The non-cash payment approach is superior to cash payments for a number of reasons.

Alan Fiske's relational theory (1992) and other models of social relationships tend to distinguish at the highest levels between relationships based on economic exchange and those based on social exchange—in other words, between monetary markets and social markets (Heyman and Ariely 2004). A common—and perhaps surprising—finding in the psychology and behavioral sciences literature is that effort in a social exchange, with no direct monetary payment, can actually be higher and less sensitive to the magnitude of compensation than effort in a pure monetary exchange (Heyman and Ariely 2004). Further, non-cash incentives tend to be perceived as tied to pro-social behavior (or more pro-social than monetary payments). For a program built on socially reciprocal relationships and pro-social ideals (such as an ARA), non-cash incentives allow for the "pro-social behavior" to remain a signal of acting pro-socially or "doing good" (Bénabou and Tirole 2006). In contrast, if a cash payment is involved, then it becomes difficult to distinguish between signals of economic exchange and signals of social exchange, or, in other words, between "doing good" and "doing well" (Ariely, Bracha, and Meier 2009). This is especially true in the context of highly visible or public behaviors, such as the management of one's property (Lacerata and Macis 2010).

This is not to say that signing an ARA contract and agreeing to its conditions is designed to be entirely pro-social. There is clearly monetary value in the non-cash material payments. But to the extent that participation in an ARA is at least a *partly* social endeavor (which is indeed the idea), an indirect non-cash payment permits that pro-social behavior to be signaled publicly (an important precondition for motivating pro-social behavior) (Ariely, Bracha, and Meier 2009). And even more, a visible cash exchange projects an image of a purely economic transaction. Employing cash payments for a program founded on social responsibility and reciprocity actually ends up undermining it. It is not only the fact that ARAs employ non-cash payments as incentives that differentiates them from traditional PES approaches. Importantly, they focus more on institution-building and social contracts based on traditional norms of risk-sharing and reciprocity than on compensating for the pure economic opportunity cost of conservation. Such emphasis on social contracts and community buy-in has advantages for effectiveness in the short term as well as sustainability in the longer term, and ensures that sustainable management of the watershed is an embedded norm within the community rather than a purely exogenous (and potentially volatile) economic instrument.

ARAs thereby represent a promising opportunity to complement large-scale watershed payment initiatives and create incentives for conservation from the bottom up. In 2010, Rare entered into a partnership with the Global Environmental Facility (GEF) and the Alliance for Zero Extinction (AZE) and launched its first Pride for ARA cohort comprising 11 biodiversity-rich sites in the Andean regions of Bolivia, Peru, Colombia and Ecuador, with support from experts at Fundación Natura Bolivia.

Rare trains local conservation leaders all over the world to change the way their communities relate to nature. Its signature method is called a "Pride campaign"—so named because it inspires people to take pride in the species and habitats that make their community unique, while also introducing practical alternatives to environmentally destructive practices. Pride campaigns are designed employing principles based in social marketing and grounded in theory from the behavioral sciences (Butler, Green, and Galvin 2013). In the early Los Negros experience, program managers at Fundación Natura Bolivia experienced the challenge of building trust between the service buyers and providers—which is fundamental to the ARA pillars of reciprocity and social cohesion. The value proposition Rare offered in replicating the model Fundación Natura Bolivia had developed over several years was based on the opportunity to apply the Pride methodology, which could generate the social cohesion needed between and within upstream and downstream communities, thereby promoting faster and more sustainable adoption of ARAs.

Rare's first cohort of 11 Pride for ARA campaigns launched in 2010, and in just three short years has resulted in 263 signed ARA contracts directly protecting more than 16,000 hectares and indirectly benefiting countless more.

Rare's first Pride for ARA cohort

	ARA contracts signed	Hectares under protection
During campaigns (2011)	44	3,530.30
After campaigns (2012)	77	2,395.60
After campaigns (2013)	142	10,524.73
Total	263	16,450.63

How does an ARA work?

There are two key constituencies, or audiences, for any ARA: "downstream" and "upstream." Key changes must occur within each constituency in order for an ARA to function effectively.

What happens downstream?

Whether they are urban or rural residents, businesses, industries or rural irrigators, downstream inhabitants require the provision of sufficient quantities of clean water throughout the year. Ideally, these water consumers can help to cover the cost of maintaining this provision of clean water. To this end, funds are set up or developed as a transparent and institutionalized means of channeling user payments to finance the conservation activities implemented with upstream producers. Beyond the merely utilitarian advantages of levying taxes on urban dwellers to help shoulder the burden of often scarce public funding for integral watershed management, the ARA model strives to build a sense of citizen participation and shared responsibility for a common resource. Rare's partners apply social marketing techniques to position the ARA strategy with the local population and key stakeholders so that they understand the function (and implications) of water-regulating ecosystems as well as embracing the model as a truly participatory model of governance. In short, Rare works with local implementing partners to help them motivate local people to *want* to conserve watersheds, with full awareness and on their own terms.

Water user payments may come in two forms: water or environmental tariffs payable each month, or voluntary deposits into a specially created conservation fund. In either case, an operational and transparently managed fund—often termed a water fund—is required for an ARA to function. These water funds themselves may take on different guises, ranging from small local bank accounts set up to receive voluntary payments to endowed trust funds.

Although ARA financing mechanisms can be broadly characterized within the user-financed variety of PES schemes (Asquith and Wunder 2008), in practice it is often more complicated. Importantly, nascent funds with incipient or weak institutionality established in downstream settlements with low populations, regardless of their willingness to pay, will require additional income from public funding and often the private sector as well, until they can become self-sustaining.

Pride for ARA in San Ignacio, Peru

In 2010, building upon previous efforts to establish a functional PES mechanism, Caritas Jaen and the GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) applied a "Pride for ARA" campaign targeting the hydroelectrically important cloud forest in the Quanda watershed of San José de Lourdes, Peru. The Pride campaign successfully motivated water users and key authorities to add a new "watershed tax" to existing electricity bills, thus providing sustainability to the ARA scheme. Furthermore, the campaign moved the authorities to establish an annual allocation of public funding (in total $24,900 for 2012) for the watershed fund. This is a legally required step seldom put in place. Upstream, 27 ARAs have been signed so far, setting aside 754 hectares of cloud forest. The creation of technical watershed management units within the water utility companies serving the area is a clear indicator of commitment, following the logic that their role—rarely seen in practice—should include both water distribution and water-source protection in the watersheds.

What happens upstream?

Once the financing mechanism is set up and its sustainability assured, the next step is getting upstream producers to voluntarily commit to changing land-use habits in favor of more sustainable and ecologically sound practices. Importantly, an ARA is a voluntary arrangement. This fact reflects a strong presumption that an ARA is inherently beneficial to those who participate; otherwise there would be no interest in or demand to do so (Pagiola, Arcenas, and Platais 2005). In a typical scenario, upstream producers express their desire to sign up for the scheme early in the process—in fact, as soon as they realize that the advantages of doing so outweigh the costs. Through structured qualitative research, practitioners are able to analyze opportunity costs and reach a level of negotiation with individual producers that effectively leads to an ARA contract. ARA contracts include a clear description of the investment plan: how the identified products representing the incentives and benefits are to be distributed and over what time period, as well as clear steps for monitoring compliance, imposing sanctions (should they be necessary), and a withdrawal strategy. Although non-compliance could potentially be remedied using the judicial system, ARA contracts are typically non-legally binding "social contracts," and it is preferable to endow them with a sense of mutual trust reinforced by points of leverage (e.g., participants only receive the incentives on a recurrent basis if they prove they are respecting the contract) (Wunder 2008). Every ARA contract will be different depending on the site, the opportunity costs, the incentives package offered, and other factors. In all cases it is necessary to draw up contracts in the most participatory manner possible.

Chapter 3

ARAs for Biodiversity, Livelihoods and Climate

Kevin Green, Alan Hesse and Amielle DeWan

Fundamentally, ARAs are about water. Intact natural vegetation supports optimum stream flow and seasonal flow regulation by protecting the soil and moderating erosion and stream sediment loads (Bond and Mayers 2010). Healthy cloud forests and páramo, as in the northern Andes, moderate stream flow with high levels of rainfall, water captured from clouds by vegetation, and low uptake of ground water by plants due to reduced transpiration caused by frequent fog (Asquith and Wunder 2008; Bond and Mayers 2010). In essence, this means fewer floods and fewer droughts. Increased infiltration and less run-off translates into less soil erosion and a greater resilience to drought. Healthy páramo has an even greater effect on drought resistance, essentially acting as a sponge that slowly releases water over long time periods, ensuring regular water flow even during periods of drought. Intact natural vegetation does not guarantee protection against floods or landslides, but it does reduce their frequency compared to converted land-use cover, particularly in smaller watersheds such as those where ARAs are implemented (Asquith and Wunder 2008).

ARAs aim to protect not only forest remnants and páramo, but also riparian vegetation, which has typically deteriorated in agricultural landscapes where cattle often have unrestricted access to rivers and streams. This unrestricted access by cattle hinders vegetation regeneration, further reducing the viability of the riparian system. In many watersheds, agricultural run-off containing pesticides and chemical fertilizers also threatens the ecological integrity of watersheds and, ultimately, water quality, downstream. Through the interaction of its particular hydrology, soils and vegetation, riparian forest is able to filter out nutrients, sediments and toxic substances. Stream sedimentation, which affects the physiological functions of aquatic life and provides a haven for harmful bacteria like fecal coliform, is effectively decreased by forest or grass riparian buffers (Klapproth and Johnson 2009). Although research is limited, studies show that riparian buffers of a sufficient width effectively filter out fecal coliform bacteria produced by cattle (Young, Huntrods, and Anderson 1980). Similarly, a limited but consistent body of research shows that riparian vegetation has the potential to detoxify pesticides and absorb heavy metals (Klapproth and Johnson 2009). This is significant in many areas where ARAs are established, not only because farmers may not always agree to stop using pesticides, but also because of continuing mining activities in certain watersheds.

All of these components explain why ARAs that promote more sustainable land-use practices upstream can deliver improvements to the ecological integrity of the watershed and the quality of its water supply downstream. But beyond improvements to the water supply, ARA programs and the healthy upstream ecosystems they secure can deliver manifold additional benefits to people and nature. These include benefits to biodiversity, livelihoods and climate resilience.

ARAs for biodiversity

Healthy natural ecosystems are essential to sustaining biodiversity, particularly in the world's threatened biodiversity hotspots. The protection of forest, páramo and riparian zones, especially when those are connected to protected areas, is like returning a disturbed agricultural landscape to a landscape better able to support wildlife communities. The value of rebuilding or maintaining connectivity for gene flow, animal movements, range shifts and other biological and evolutionary processes has broader implications for facilitating an environment in which diverse species may better adapt to climate change (Heller and Zavaleta 2009). ARAs aim to establish such connectivity for the benefit of biodiversity.

Often, ARA-protected lands are positioned adjacent to protected areas. In many sites, a protected area may exist, but weak enforcement may not prevent encroachment by surrounding human populations. Protected area buffer zones are often completely absent or nonfunctional. In such scenarios, ARAs can provide a rapid, sustainable and socially palatable solution by reinforcing weak or absent buffer zones through sustainable land management. Rare's initial ARA cohort included a site (in Yanuncay, Ecuador) whose biological monitoring revealed the presence of two critically endangered frog species in the riparian areas protected by those agreements. At one site in Colombia (in Roncesvalles), eight ARA contracts supported the protection of 2,000 hectares of prime habitat for the endangered yellow-eared parrot (*Ognorhynchus icterotis*) outside of the directly contracted lands. These areas are not directly under contract, so there is no explicit guarantee of their protection, but the experience of practical buffers and connectivity attests to their significant contribution to biodiversity protection.

ARAs for livelihoods

ARA schemes promote greater understanding of the relationship between upstream land use practices and downstream water availability and quality. Upstream and downstream stakeholders alike are often unaware of the origins of their water supply and its relationship to the watershed ecosystem. Similarly, farmers upstream tend to ignore or discount the effects that their land-use practices may have on people living further downstream. Through the Pride campaign process, downstream and upstream audiences are able to understand the relationship between watershed health and the water supply. Pride for ARA campaigns promote a high level of transparency between these two audiences: water consumers paying into a watershed conservation fund need to know where their money is going, and upstream producers need to know that the beneficial alternative land-use practices made accessible to them through an ARA are possible because water users are paying for it through a fund.

On a global scale, the U.N. Millennium Development Goals of eradicating poverty are unlikely to be realized (UNDP 2006). It is still too soon to tell whether watershed

payment schemes, including ARAs, are a universally applicable solution to poverty alleviation (Pagiola, Arcenas, and Platais 2005). There is little scientific evidence documenting the impact of watershed payment services such as ARAs on livelihoods and human well-being. With respect to ARAs, this is largely due to the fact that the methodology is still in its infancy. But for PES programs more broadly, poverty alleviation is not typically a measure of performance and is thus not monitored over sufficiently long periods (Bond and Mayers 2010).

The evidence varies, but the hope is that watershed payment schemes at least cause no harm to poor people. Many provide significant and positive indirect benefits, such as increased social capital in poor communities and increased trust between upstream and downstream communities (Asquith and Vargas 2007). Enhanced knowledge of common challenges and possible ways of addressing them builds social capital and empowerment. In the words of Bond and Mayers (2010), working through the complexity of issues typically involved in watershed relationships can itself be a major benefit. The role of ARAs in this regard has been recognized in recent literature on watershed payment schemes generally (Bennett, Carroll, and Hamilton 2013).

Some case studies do show evidence suggesting that watershed payment schemes have positive material effects on livelihoods. For example, a study by González Guillen (2004) showed that under Mexico's Payment for Hydrological Environmental Services Program, 73 percent of small private landowners and 80 percent of communal land *(ejido*) members said that watershed payments were important to their annual income. The in-kind form of compensation provided to land managers participating in an ARA, such as agro-input and technical training, can contribute to long-term improvements in livelihoods by creating new opportunities for income diversification and improved food security (Bennett, Carroll, and Hamilton 2013; Green *et al* [in review]).

Because payments are directed to upstream producers to compensate changes in land-use practices, this group is generally the primary beneficiary in terms of livelihood and well-being. In most cases, particularly

in national programs, plans target only landowners and often completely bypass the poorest sectors of society—migrants and rural people lacking land tenure (Grieg-Gran, Porras, and Wunder 2005). Most evaluations of the relationship between watershed payment programs and poverty alleviation have focused on the fact that participation is skewed toward the least poor in a community, largely because of land tenure or property-size limitations (Pagiola, Arcenas, and Platais 2005). This is where the ARA mechanism can make a great difference: due to its flexible, negotiation-based and individually tailored approach, ARA benefits to participant producers can include covering the legal costs for obtaining or clarifying land tenure. Producers with previously undocumented or legally unrecognized land tenure are able to benefit not only from the ARA incentives package itself but also from the monetary incentives of national PES schemes such as Ecuador's Socio Bosque program, which previously excluded them because of this lack of clarity regarding their title deeds. ARAs thus provide a potential means to level the playing field among upstream producers by offering secure land tenure to the poorer producers as well as the direct benefits also made available to established landowners. By virtue of this approach, and bearing in mind that unclear land tenure is a common issue in the Andean regions where Rare works, ARAs are potentially able to reach more upstream producers and thus protect key water-regulating ecosystems over a larger land area in any given watershed.

The picture is not so clear-cut for water users, who typically pay into the conservation fund financing the ARA mechanism upstream. For this reason it is difficult to evaluate the benefits to water users in terms of livelihoods beyond the benefit of a clean and consistent water supply. They are indeed paying for improvements to their well-being in the form of improved water quality, but the difficulty of detecting the impact of ARAs on quality at the downstream water source has limited the scientific research needed to confirm this. However it is interesting that water users are often very willing to pay for upstream watershed conservation actions. For example, in Costa Rica, the amount water users were willing to pay was three times more than the tax actually added to the bill (Bond and Mayers 2010). Examples from Rare's current ARA cohort reflect this trend: on average (across 10 sites), 69.5 percent of water users surveyed said they were willing to pay into, or otherwise support, a water fund financing conservation activities in the upper watershed. Taking pride in the local resources and ecosystems that surround them and being empowered to contribute to their protection, as well as to support and engage with their ecological neighbors, undoubtedly supports a greater sense of fulfillment and well-being.

ARAs for climate

Climate-change mitigation and adaptation are both high-potential co-benefits of ARAs. Mitigation means preventing (or, more accurately, lessening) climate change by reducing greenhouse gas emissions—in this case particularly through the carbon storage and sequestration potential of healthy forests and soils. Climate adaptation, by contrast, means minimizing the *impact* of climate change by promoting social and ecological resistance to it, such as learning how to cope with the increasing frequency of floods and droughts.

The ARA model provides viable alternatives to upstream producers whose current land-use practices threaten highly vulnerable watershed ecosystems critical to biodiversity, water regulation and other ecosystem services, including clean air, carbon sequestration, flood and erosion control, and regulation of local rainfall. Thus, by protecting and restoring the ecosystems that provide these services, ARAs may effectively contribute to global climate-change mitigation. At the same time, they solve local problems of adaptation through the provision of land-use alternatives that promote resilience to climate change.

In comparison to larger-scale watershed service payment schemes, ARAs may have higher mitigation impact, given that additionality (*adding* to the sum of protected land, rather than protecting land that otherwise would not have been at risk) and conditionality (ensuring that incentives are conditional upon delivery of service) are managed and verified locally. The same can be said for adaptation: in-kind compensation, as opposed to cash payments, can help transition farmers toward less rainfall-dependent perennial agriculture and more diversified livelihoods, through the provision of training and technical support, which tend to be included as part of the ARA incentives package.

In addition, contrary to top-down PES schemes, the ARA approach does not automatically reject upstream producers who are unable to show title deeds from the outset; part of the ARA negotiation process typically includes a legal evaluation of land tenure of those interested in joining the program. The common outcome of this is that the interested parties very often are the legal owners of their lands, but are unable to prove it. In such cases, the costs of obtaining the title deeds become part of the incentives package offered by the ARA. This means that ARA is thus able to impact a larger number of small landowners in any given watershed, thereby potentially achieving greater mitigation as well as local adaptation.

An important element of climate adaptation is social

resilience. This resilience can be manifested through increased ability to organize and manage at the local and regional levels. The Pride for ARA model generally involves working with different levels of government, usually local and regional, and increasingly at the national level. As the communities (downstream and upstream) become more engaged with the Pride for ARA process, they begin to see their role and responsibility as that of "pushing" their rights from the local and regional governments. This in turn generates support for political establishments that in turn pass legislation and regulations that benefit communities in the region. The 2010 Colombian Pride for ARA projects (Queremal-Farallones de Cali, San Vicente de Chucurí, Roncesvalles and Guasca) demonstrate how local community support built by Pride campaigns enabled political authorities to pass legislation to fund ARA contracts (conservation action in the watershed). This has also happened in Bolivia (El Torno) and Peru (San Jose de Lourdes, San Ignacio). Local communities and authorities learning to work together may find the confidence and support to make the difficult choices climate change may require of them. At the same time, by improving the health of locally managed natural resources and ecosystems through voluntary action, they have the potential to increase the resilience of the natural system and its ability to better adapt to unpredictable changes.

Finally, contracts signed in the Pride for ARA campaigns to improve productive practices in the watersheds can contribute to climate-change mitigation and adaptation from avoided deforestation.


PUNTO DE
MUESTREO
AGUA CRUDA

Chapter 4

The Basic Components of an ARA

Natalie Rodríguez-Dowdell, Itala Yépez-Zabala and Kevin Green

The ARA approach includes three core elements:

1. A *permanent financial mechanism* that ensures financial resources from different sources, especially water users, to secure watershed protection investment in the long term.

2. *Local institutionalization* to establish the financial mechanism, manage and implement ARA contracts and follow-up to secure long-term commitments.

3. *Long-term agreements that generate additionality* signed between the local institution and landowners through a one-on-one negotiation where commitments from both sides are clearly established (i.e., incentives for landowners, protection of forests by them).

4.1. Permanent Financial Mechanism

Permanent financial mechanism refers to the system established to assign diverse sources of funding to secure long-term conservation results. Thus, it includes the allocation of public and/or private financial resources (table 1), their administration and operation, and a communication process to tell the population how the resources are being invested. Per its definition, ARA includes contributions from the water users. The legal framework of a particular site and country will determine if these are voluntary or mandatory (i.e., included as an environmental tariff in the water bill or through a tax established by an ordinance).

Administration and operation of the financial resources are varied. They depend on local institutional arrangements as well as the availability of existing national or regional mechanisms. Possibilities include: (1) local funds, (2) regional funds, (3) independent accounts sustained through inter-institutional agreements, (4) inter-institutional watershed conservation programs,;

Table 4.1. Financial Resources Allocated to Rare's First Pride for ARA Campaigns

Site (Implementing Partner)	Financial Resources Allocated to ARA
San Ignacio, Peru (Caritas)	• Participative budget allocation: US$22,000.00 • Tax US$0.71/user/month: US$7,400.00
Roncesvalles, Colombia (ProAves)	• Voluntary fee of US$0.034: US$2,500.00/Year • Allocation of 100 percent of resources (Article 111, Law 99 of 1993)
Amaluza, Ecuador (Arcoíris)	• Approved ordinance in second proceeding, rate US$0.05/$m^3$
Guasca, Colombia (CORPOGUAVIO)	• Allocation of at least 10 percent of resources from Article 111, Law 99 of 1993 and deductible conservation bond acquisition
El Torno, Bolivia (Fundación Natura Bolivia)	• Fee of US$0.15/user/month
Queremal, Colombia (Parque Farallones)	• Surplus allocation (statutes reform)
San Vicente, Colombia (Fundación Natura)	• Surplus allocation (up to 30 percent)
Zumba, Ecuador (NCI)	• Fee of US$0.03/$m^3$
Cuenca, Ecuador (ETAPA)	• Allocation set by ETAPA of US$0.05/m3: US$1.3 million/year of which US$200,000.00 are for the ARA program

Source: Rare 2012a.

and (5) integration with existing water funds.

Contributions may also come from diverse sources:

- Mandatory taxes for conservation
- Voluntary contributions from water users
- Contributions from industrial, energy-hydropower and irrigation sectors
- Rounding or other type of voluntary contribution from local businesses
- Municipal ordinances that define a tariff for conservation, and resources from central governments
- Donations from foundations and private enterprises
- Environmental taxes
- Funds from water-utility companies
- National and international loans

These contributions are used to compensate landowners, and they may also include tax exemptions in exchange for forest protection.

Some sites utilize existing water funds or trusts, which may have a larger conservation objective and geographic impact. Other sites design entirely customized mechanisms or "local water funds" to conserve the watershed using local institutions, leveraging support and participation from landowners

Pride for ARA Campaign in San Ignacio, Peru.

and water users (box 4.1).

Fund for Watershed Protection in San Ignacio, Peru

The fund was created by Municipal Ordinance No. 017-2011-MEPSI, approved by the San Ignacio Provincial Council in ordinary session on August 24, 2011, and signed by the provincial mayor. The ordinance responded to the threats in the watershed: deforestation and inadequate land use. These threats affected biodiversity, reduced the quality/quantity of water for human consumption, decreased electricity production, and made the area more vulnerable to natural phenomena. Thus, the ordinance's objective was to "protect the watersheds of hydrological importance for the San Ignacio Province, with special priority to the Quandas and Bojitas Micro-Watersheds." Prior to its establishment, the urban population confirmed its willingness to contribute to forest conservation (the Pride for ARA campaign established the level of knowledge, attitude, interpersonal communication and behavior change in the population). The financial resources included: (1) an intangible contribution in the water tariff, (2) an annual contribution of 0.76 percent of the budget from the Provincial Municipality Compensation Fund, (3) a tax for watershed protection of US$0.36 per month per contributor — implemented after conducting an information and socialization campaign, and (5) private (NGOs and businesses) and public resources. A special account called a "watershed protection fund" was established and managed by the treasury office of the municipality to set up conservation agreements with the landowners using incentives for forest conservation implemented via a social-marketing campaign. The operation would be coordinated by a management committee (established by the same ordinance) to (1) support the preparation of strategic, annual operation, and investment plans; (2) involve public and private organizations in drumming up technical and economic support; (3) follow up and evaluate watershed management activities and the ARAs; (4) review and approve investment plans to present to the municipal council for final approval; (5) monitor transparency; and (6) inform local authorities and citizens.

The management committee included one representative from the municipality; one representative from the contributors (EPS, Electro Oriente, ADINELSA); a representative from the San Ignacio community; and a representative from the landowners (one per micro-watershed), all of who had voice and voting privileges. Additionally, local NGOs and state entities could voice their opinion (environmental ministry, ATFFS, etc.). The management committee structure and regulation was later approved by the municipality council.

Source: Elaborated from the revised document MEPSI 2011.

Pride for ARA campaign activities leverage support and active participation from landowners, water users and local authorities. Thus, a new tax for watershed conservation that could be viewed as "one more tax" becomes a socially acceptable new norm. For example, in Guasca, Colombia, after the Pride for ARA campaign, 81.85 percent of water users were willing to contribute to the conservation of the upstream forests and páramo in the Río Siecha Watershed (up from an initial 51 percent). There, the Guasca Municipal Council approved a "conservation incentive program to protect the watershed environmental services" (CORPOGUAVIO 2012).

Management committees, with representation from landowners and water users, create transparency in the permanent financial mechanisms. They also create trust among authorities and citizens. Wunder (2008) notes that trust among stakeholders is crucial to the success of this type of process. The committees also foster joint decision-making about the conservation of water-regulating ecosystems. Finally, it is worth noting that utilizing local institutional arrangements and establishing mechanisms based on the local political, legal, and social conditions can help minimize transaction costs.

4.2. Long-Term Agreements that Generate Additionality

Long-term agreements that generate additionality are contracts between upstream landowners and local institutions that outline the commitment of each party to protect water-regulating ecosystems. They are signed for a minimum of five years[4] and are established in strategic sites within a watershed to generate biological corridors. They may also "add" conservation efforts to the area, ideally locating them adjacent to other biodiversity conservation sites (e.g., protected areas, municipal areas, areas with PES investment),[5] if identified in the watershed. Additionality is also obtained by (1) establishing the ARA contracts in those sites within a watershed that are under high threat (i.e., there is a high probability that the ecosystem will be lost if the intervention is not undertaken), and (2) isolating riparian areas from all uses and promoting natural regeneration. The contracts are financed through diverse sources, including contributions from water users (whether voluntary, in the water bill or as a tax), which generate reciprocity between the

4. Some Pride for ARA campaigns promoted longer-term contracts, such as the Yanuncay Pride for ARA campaign, in which landowners and ETAPA (the municipal water company) signed 10-year contracts..

5. Yanuncay Pride campaign ARA contracts enable a landowner to enter Ecuador's Socio Bosque program (Ecuador's national PES program) as one benefit of the ARA contract. Thus the ARA contract leverages incentives to improve production practices and increase benefits from Socio Bosque. L. Guerrero Vásquez, personal communication, September 9, 2013.

environmental service (i.e., water) providers and users. ARA contracts vary in content depending on the site, local institutional arrangements and one-on-one negotiations with landowners. In contrast to national level PES programs offering standard benefits to all landowners, regardless of where they live or their socioeconomic conditions,[6] ARA contracts are negotiated individually with each landowner. If the landowners are organized in a group such as an ejido, then existing rules for group decision-making apply.[7] Individual negotiations allow for a variety of benefit-exchange options and ARA contracts customized to fit the individual[8] and the ecological and social context. The ecological context refers to the structure of the ecosystem where humans live and work, and the particular properties of that ecosystem. The social context takes in the human dimension—one's cultural, social, institutional, and economic relationship to resources (Hanna and Munasinghe 1995).

ARA contracts should be designed to: (1) minimize the threat to biodiversity and water quality from land-use practices; (2) improve livelihoods; and (3) build the capacity to improve productive practices that enable landowners to continue the efforts independent of the institutions, expanding to other parts of their land. Appendix 1 includes suggested clauses for ARA contracts.

Property rights play an important role in ARA contracts, as they can be defined in terms of the owner(s) or user(s) and their relationship to certain goods (Devlin and Grafton 1998). In general, property rights are the rights people have to use resources. Property-rights regimes consist of *property rights*, titles that define one's rights and obligations regarding the use of natural resources, and *property rules*, the rules under which those rights and obligations are implemented (Bromley 1991). Hanna and Munasinghe (1995) note recent scientific evidence that suggests that a well-specified property-rights regime is a necessary condition (among others) for proper natural resource husbandry. Property rights help to avert the negative outcomes brought about when natural resources are considered a free and unrestrained public right (Toledo-Ocampo 1996) and there is no legal framework for the proper use of that public right.

In the Pride for ARA campaign sites, contracts are signed with: (1) landowners with verified tenure; (2) people who do not have a title but are the rightful owners, or have been living for a certain number of years on the land and can participate in a process to obtain their land deed or determine their ownership through precedent;[9] and, in some cases, with (3) land renters authorized by their respective landowners.[10] In addition to one-on-one negotiations, a land tenure analysis must be conducted (chapter 6.4) to conclude the process of signing an ARA contract.

6. CONAFOR offers US$33 per hectare per year.

7. Cerro Grande and Anillo de Cenotes de Yucatán Pride for ARA campaigns.

8. Rio Guadalajara Pride for ARA campaign in Colombia. Some high-income landowners were willing to sign an ARA contract in exchange for a tax exemption. A. Gil, personal communication, January 27, 2013.

9. Rio El Angel Pride for ARA campaign.

10. Yanuncay Pride for ARA campaign.

Regarding the negotiation per se, it is important to avoid discussing the agreements with landowners on a strictly economic basis so the ARA contract implementation is not viewed as merely an economic transaction. For riparian areas, one-on-one negotiations (i.e., for each hectare of riparian habitat conserved, the landowner receives benefits to improve productive practices in an equivalent hectare)[11] have been implemented with landowners; however the focus remains on improving the land use and the landowner's livelihood. Compensation can be a tricky business as it may place negotiators in uncharted territory. That said, when technical information is presented and discussed in a management committee or other forum with representation from both landowners and water users, a fairer solution may result. Finally, regarding long-term ARA agreements, the ARA program should set priorities to achieve the highest possible conservation result. The ARA program is not, or should not be perceived as, a subsidy program to serve all landowners in a watershed. Rather, it seeks to establish commitments and responsibilities from institutions and landowners that have areas with key water-provision ecosystems in the watershed.

4.3. Local Institutionalization

Local Institutionalization refers to the local institutional arrangements that support and guarantee the administration, follow-up, evaluation, and innovation of the ARA contracts. It also establishes the financial mechanisms, including the participation of water users and landowners in the decision-making process, promoting local organization. These arrangements represent the foundation for local governance, fully internalizing one of the core principles of sustainable development—subsidiarity—which states that each type of action should be carried out at the most appropriate level (Connor and Dovers 2004).

As opposed to centrally driven PES programs, which have homogeneous standards and rules that must be applied in highly heterogeneous environmental, economic and social contexts, ARAs can be fully customized for local conditions. Thus, the program is designed to leverage the technical, financial and operational capabilities of diverse local institutions (both public and private) as well as the community in general. One impact of the Pride for ARA campaigns is their promotion of volunteerism among individuals and groups. ARAs are aimed at solving a specific problem in a watershed; they should therefore be analyzed in the context of integrated watershed management. Pride for ARA campaigns facilitate synergies between diverse organizations with a common mandate or interest in a site.[12] In addition, these arrangements allow for close follow-up and monitoring by landowners and water users. In turn, the close communication established between authorities and ARA audiences (as well as others from the community) may promote appropriation of the mechanism. From a conservation perspective, the threats to biodiversity (locally and globally) are solved on site using clear knowledge and contact with the threat drivers (i.e., people implementing land use practices affecting the ecosystems).

How the local institutionalization is set up varies from case to case and depends primarily on how the local institutions are established (boxes 4.2 and 4.3).

11. Tabacay Pride for ARA campaign.

12. The Los Angeles sub-watershed Pride campaign, conducted by CVC in Colombia, has been able to leverage support from both an environmental education organization and a technical organization working with coffee producers to minimize pollution from coffee residues. H. Sanchez, personal communication, November 21, 2013.

Pride for ARA Campaign in San Vicente de Chucurí, Colombia

San Vicente de Chucurí Pride for ARA Campaign in Colombia

San Vicente de Chucurí offers an interesting case of local institutionalization. The Pride for ARA campaign was implemented by Fundación Natura. This NGO worked closely with the municipality and the municipal water company (APC Manantiales de Chucurí) to build the ARA program on site, basing it largely on the official mandates but leveraging the capabilities from the NGO. An inter-institutional agreement signed between San Vicente's municipality, Fundación Natura and the APC Manantiales de Chucurí (originally for three years)[13] established the Water Quantity and Quality Protection Program. The goal was to join technical, logistic, administrative and financial efforts to structure the program, implement a local funding mechanism and set up a local committee. It was necessary to modify the APC Manantiales de Chucurí statutes in order to establish an environmental unit responsible for financial administration and hire a technician to operate the program (planning, implementation, research, follow-up, evaluation and systematization). Financing for this unit comes from varied sources. Additionally, a management committee (formed from the existing environmental municipal committee) supports the planning, follow-up and evaluation, and develops the operational plans and reports. Follow-up of ARA contracts is conducted by the APC Manantiales de Chucurí technician in close collaboration with the management committee, which ensures a permanent communication process between water users, landowners and authorities. The process includes visits by water users to plots where ARA contracts have been signed. This is particularly important, as the water users' contributions from the domestic sector are voluntary. The communication process has been crucial to maintaining the voluntary contributions.

Source: Elaborated from the revised document Alcaldía Municipal de San Vicente de Chucurí et al. 2011 and from a personal communication with C. Cespedes (August 12, 2013).Box 4.3.

13. The Inter-Institutional Agreement has recently been ratified for five years. C. Cespedes, personal communication, August 12, 2013.

Pride for ARA Campaign in Yuracyacu, Peru

The Yuracyacu Pride for ARA campaign is currently being implemented by Conservation International (CI) in San Martin, Peru. Its objective is to conserve the cloud forests located in the buffer zone of the Alto Mayo Protection Forest, under the jurisdiction of the Natural Protected Areas National Service (SERNAP), with CI managing the contract. The site is the habitat of the Peruvian yellow-tailed woolly monkey, an endemic and endangered species. The site generates water for the downstream residents of Nueva Cajamarca. The campaign's focus is to establish an ARA program in the municipality as a public policy that can withstand government staff rotation. It also includes strengthening the environmental section of the municipality so it can lead and provide follow-up for the ARA contracts. Securing long-term contracts is not merely a financial issue; it also means securing the institutionalization to operate the ARA contracts. The municipality used to hand out "benefits" to landowners, such as seedlings/plants for reforestation; landowners then signed a letter attesting that they had received the benefits. However, neither commitments on either part nor follow-up or monitoring systems were devised. Those letters were designed as commitment acts, and signed by the municipality and the landowners. They include the number of hectares to be conserved, the benefits granted and delivery timeline, the cost of the benefits and funding sources, the commitments of each party and the penalties for noncompliance. This is considered a pre-ARA contract, since the permanent financial mechanism has not yet been set up. However, it will allow both the municipality and the landowners to sign agreements in which the commitments of each party are clearly established. The focus of the ARA program, in terms of local institutionalization, is that the municipality leads the program and CI support it (according to its strengths in the area).

Source: Rina Gamarra Tananta, Yuracyacu Pride for ARA campaign manager. Personal communication.


GOBIERNO REGIONAL AM
"RAYMILLACTA DE LOS CHACHA

Chapter 5

Inspiring Communities and Promoting Pride

Oswaldo Contreras and Namir Nava

One challenge of implementing PES mechanisms is how to integrate the stakeholders directly involved in the benefit exchange process. These stakeholders include water users and upstream landowners whose lands contain ecosystems providing hydrological services. Asquith and Wunder (2008) consider that watersheds have provided free services to water users for millennia. Therefore, there is an ingrained perception that it is unnecessary to pay for what comes naturally, and that only manmade goods or services should have a cost. Users pay a lot of money for bottled water but are generally unaware that watershed restoration could provide a similar water quality for a fraction of the price.

Rare has developed Pride for ARA campaigns with local partners in more than 14 sites in five Latin America countries (Bolivia, Colombia, Ecuador, Mexico and Peru). In 50 percent of the campaigns, only 25 percent or fewer of surveyed users have been aware that their water comes from water-regulating ecosystems. Thus, they are likely unaware of the source of their water (table 5.1). Under the circumstances, ARAs must inform and motivate water users and landowners. A socializing component of the ARA mechanism—motivating community participation—may yield the following benefits:

- Long-term financial sustainability due to the continued motivation of water users to contribute to the ARA mechanism.
- Landowners (with water-regulating ecosystems in their land) share with others information about the technical, economic, social, productive and environmental benefits derived from the ARAs.
- Highly involved constituencies motivate the local authorities to initiate/maintain ARA processes and strengthen local mechanisms.
- Local ARA mechanisms that can be implemented in one or two years *versus* four or more years with no social-marketing campaigns (Rare 2012b).
- Generation of a sense of pride for active participation in a reciprocal process to conserve ecosystems that provide environmental services (i.e., water regulation, biodiversity conservation, climate-change

regulation).

Table 5.1. Level of Awareness of the Ecosystem-Water Relationship of Audiences in 14 Pride for ARA Campaigns (2010-2012)

Audience Percent Level of Awareness	# of Campaigns	Percentage
0-25	7	50%
26-50	3	21.5%
51-75	3	21.5%
75-100	1	7%

In Rare's experience, the Pride for ARA campaigns use social-marketing tools to motivate the participation of water users and landowners to facilitate and accelerate ARA processes.

Building a movement

A new behavior is more likely to be adopted and sustained if it becomes a "social norm" and if it is supported and enforced by the wider community (Butler, Green, and Galvin 2013). Pride for ARA campaigns have demonstrated that community mobilization is a key to achieving changes necessary for conservation. In some cases, community mobilization has motivated reluctant authorities to support ARA processes. The participation of water users and upstream communities in Pride for ARA campaign events (parades, festivals, flashmobs, concerts, and mural painting, to name but a few) encouraged authorities to see the need to act in their constituencies' interests. Pushing ordinances, creating water funds and enacting regulations for ARA are some examples of how social marketing in Pride for ARA campaigns has mobilized the community.

To build campaign momentum, campaign managers must cultivate strategies to engage local leaders and have them adopt the goals of the project. Leveraging the strengths of local groups with a common interest creates energy to inspire other community members, including target audiences, key stakeholders, and influencers. Then the ARA process has the strongest ally—community—with whom to inspire water users to pay more for water funds, local authorities to develop institutional mechanisms for ARAs and landowners to adopt sustainable practices through ARAs.

Social Marketing and ARAs

Social marketing is the "application of concepts and tools from commercial marketing to influence voluntary behavior changes in target audiences to improve their lives (and) the societies they are part of" (Lee and Kotler 2011). In that sense, Pride for ARA campaigns educate landowners and water users about the origins of the water they consume and the problems affecting the source, influencing audience attitudes about ARAs—people talk among themselves about the importance of participation and their willingness to sign the agreements. Existing barriers are removed, allowing audiences to receive the benefits (i.e., improved production alternatives for landowners and improved water quality for water users) and change their behavior.

Using both qualitative and quantitative research (focus groups and in-depth interviews in the former, surveys in the latter), the benefits of current behaviors (such as deforestation, soil degradation, lack of contributions and indifference), and the obstacles in the way of desirable behaviors (such as forest conservation, improved productive practices and monetary contributions to a conservation fund) are elicited from previously selected target audiences.

Among water users, it is important to identify the target group for the social-marketing campaign (i.e., housewives, irrigators). It is also important to identify the land-use profile of the upstream landowner whose activities are threatening the ecosystem (i.e., farmer, cattle rancher, coffee grower) so that those activities may be modified as part of the ARA scheme, reducing the overall threat. Once this information has been obtained, adequate materials and activities are designed to promote the benefits of participating in the ARA scheme and motivate the changes in behavior needed to adopt the ARAs.

Relevant Social Marketing Activities

Appropriate benefits for landowners are identified in meetings with water users. Landowners are able to talk about their problems and understand the water users' point of view. If key stakeholders and decision-makers are involved in these meetings, the activity is more relevant, as it shows the importance of having a compensation mechanism for the landowners protecting the water-regulating ecosystems.

An example of high-impact materials are the radio soap operas. Broadcasted by chapters in radio, soap operas provide entertainment and education reaching the landowners. For Rare Pride 2010-2012 campaigns, the radio soap opera was aired in eight sites in Colombia, Ecuador, Peru and Bolivia. Of the approximately 1,633 landowners who listened to it, 63 percent of them talked about ARAs, in contrast to the 31 percent who had not listened to it (Vaughan 2012).

Chapter 6

Steps to Creating an ARA

Natalie Rodríguez-Dowdell, Sandra Conde, Ítala Yépez-Zabala and Oswaldo Contreras

6.1 Defining the problem and the objective

When working with ARAs, it is vital to identify if the mechanism is able to contribute to improvements in biodiversity conservation and water provision. Thus, a first step is to assess the watershed using biological, social, legal and economic criteria (table 6.1). From the biological side, the presence of water-regulating ecosystems that can be protected and (if possible) restored must be identified. Then, one must determine if the threat is caused by human use (i.e., livestock, agriculture) and if it can be minimized by improving the productive practices.

Table 6.1. Suggested Criteria to Evaluate the ARA Potential of a Site

Category	Criteria
Biological	• High biodiversity context (sites in mega diverse countries, hotspots, relevant ecoregions) • Presence of water-regulating ecosystems • Presence of water sources (rivers, lakes, sinkholes, springs) • Presence of riverine banks
Social	• Feasibility to negotiate with landowners • Favorable attitude towards conservation and ARAs • Political stability • Road access Social cohesion • Organizational context
Legal	• Land tenure or possibility to verify ownership through other means such as precedence • Regulatory support from municipal governments • Ability of municipal governments to enact their own tailored regulations National interest on water related issues • Political will and support towards social issues
Economic	• Productive practices whose threat can be minimized by improved practices • Availability of technical assistance • Feasibility of incentives

The goal of ARAs, like other PES mechanisms, is to leverage the contribution from water users to provide in-kind incentives to landowners who have water-regulating ecosystems on their land and who express willingness to protect them or change their practices to more environmentally friendly activities. Therefore, the potential site should have: two clearly identified audiences; a provider of the environmental service; good water quality and flow throughout the year; and water users with whom reciprocity can be established through the ARA scheme. The landowners can be either private individuals or communal landowners such as indigenous communities or ejidos capable of signing a conservation agreement (ARA contract). The water users can include domestic users, hydroelectric plants, irrigators and industrial users.

Ideally, ARAs should be established adjacent to protected areas to generate additionality. When ARAs are located in a protected area,[14] it is fundamental to ensure that the intervention complies with the area's norms and regulations (i.e., decree, management program), and obtains the approval and collaboration of the corresponding authorities. Finally, it is important to review the institutional aspects and determine if the local agencies are interested in protecting the hydrological service to benefit the different users.

Once a watershed has been identified as having potential for ARA, it is necessary to use technological tools to define the Area of Hydrological Interest and determine the Potential Area for ARA, as noted in box 6.1 and figure 2.

14. In 2014, Pride for ARA campaigns were introduced in the protected areas of Rio Cali Forest Reserve (Colombia), Sierra de Manantlán Biosphere Reserve (Mexico), and El Chorro Municipal Protected Area (Ecuador).

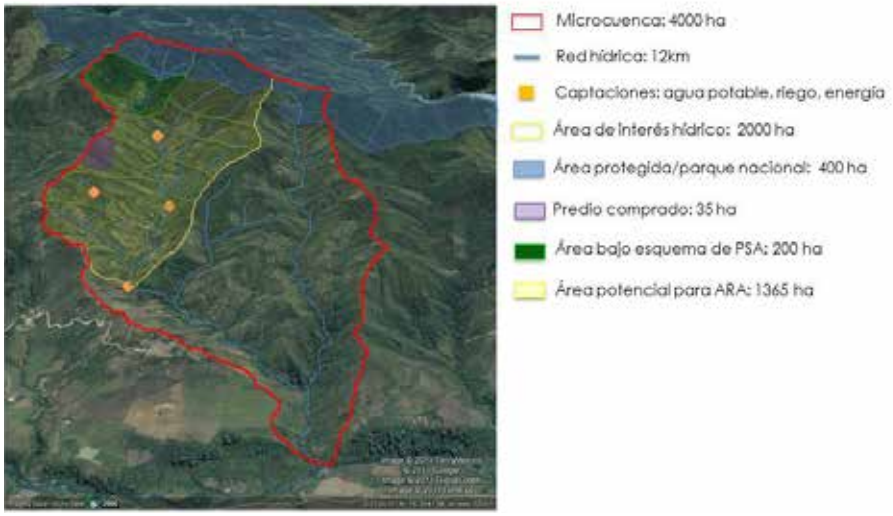


Figure 2. Proposed ARA site showing PAA

Box 6.1. Calculations for the Potential Area for ARA

- Area of Hydrological Interest (AHI) is the area from the lowest point of water capture/intake to the highest points of the watershed.
- Potential Area for ARA (PAA) equals AHI- area within other protection schemes.

Once the potential area for ARA has been determined and the stakeholder analysis (chapter 6.2) has been concluded, the objectives for conserved hectares, improved water quality, landowners engaged, productive practices implemented, and contribution from water users may be defined for the specific watershed.

6.2 Stakeholder Analysis and Engagement

Stakeholder analysis is a process of systematically gathering and analyzing qualitative information to determine whose interests should be taken into account when developing and/or implementing a policy or project (Schmeer 1999).

A stakeholder can be defined as "any individual, group, or institution who has a vested interest in the natural resources of the project area, political interest in the project activities and outcomes and/or who potentially will be affected by project activities" (Golder and Gawler 2005).

Policymakers and managers can use a stakeholder analysis to identity the key stakeholders and to assess their knowledge, interests, positions, alliances and importance related to the program. When this analysis is conducted before a program is implemented, policymakers and managers can detect and act to prevent potential threats to the project. When a stakeholder analysis and other key tools are used to guide the implementation, the project is more likely to succeed.

The viability of the ARA mechanism depends on the level of involvement and backup from certain key stakeholders in order to achieve local buy-in from institutions. The stakeholder analysis is an exercise that seeks to collect key information from stakeholders that is critical for the proper implementation of ARAs, while the stakeholder map[15] is a tool that provides a panoramic view of the different positions of these stakeholders in relation to the initiative and enables the evaluation of the level of collaboration of each stakeholder regarding the project. Its elaboration at the beginning of the project allows the identification of

15. The Stakeholders Map used in the Pride for ARA GUAD 12 campaigns is based on the tool created by the project Proyecto Gestión Participativa de Áreas Naturales Protegidas-GPAN. The tool can be found in PROFONANPE. 2007.

key sectors and stakeholders who should be involved from the beginning to guarantee the success of the initiative. An early knowledge of interests, motivations and attitudes from the stakeholder towards the project, allows the consideration of strategies that maximize possible alliances and reverse adverse positions.
Another benefit of starting the project with a stakeholder analysis and a key stakeholder map is that it enables monitoring of the changes in the positions of stakeholders regarding their participation in the project. The level of involvement of the strategic stakeholders with the project can be applied as a baseline for the impact evaluation of the key influencers strategy, which is part of the ARA strategy campaign.

The steps to develop a stakeholder analysis and a key stakeholder map are the following:

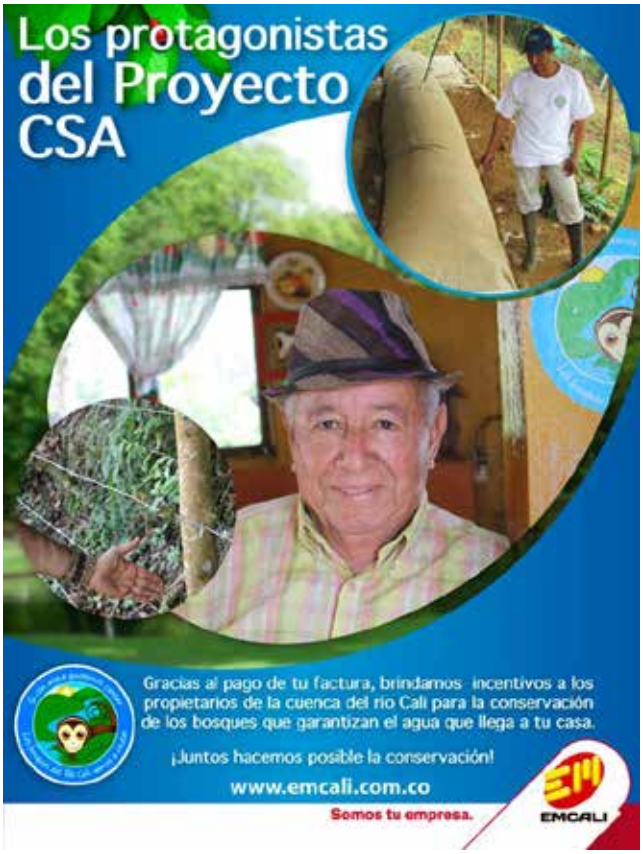
1. Identify and make a list of potential key stakeholders by brainstorming between the members of partner organizations.

Brainstorm the stakeholders who are involved in the project's environment and who may have some influence on the project. You must consider the next criteria in order to prioritize the most relevant stakeholders:

- Who will be influenced (positively or negatively) by the project's activities?
- Who should be involved in the creation of a financial mechanism?
- Who may collaborate in the technical offer that the mechanism will offer?
- Who has a role in the watershed administration and conservation?
- Who are influential stakeholders in the project's target audience?

It is important to consider all these sectors and ensure the stakeholders for each sector are included. The sectors to consider include:

- Leaders of natural resources' users or the local community
- Officials or representatives of the public sector
- Local and regional political representatives
- Representatives of NGOs, the media and private institutions



2. Conduct qualitative investigation with key stakeholders.

Conduct in-depth interviews with key stakeholders to allow a greater understanding of the following aspects:

- What are the levels of knowledge on the topic?
- Which key project issues affect the stakeholders?
- What are their interests in the project?
- What may be the contribution of the stakeholders to the project?
- What are the perceived benefits of the project?
- What are the perceived barriers to supporting or joining the project?
- What are their means and sources of information?

3. Systemize the information in a matrix of key stakeholder analysis and determine the stakeholder's position and intensity.

From the analysis of the results obtained in the qualitative investigation, the stakeholder's position within the project is determined, whether the stakeholder is opposed, neutral or collaborating.

- Opposing stakeholder: shows an attitude contrary to the change that the project promotes and to those involved in it.
- Neutral stakeholder: shows no interest and avoids manifesting an opinion in favor of or against the change initiative.
- Collaborative stakeholder: shows supportive attitude to the change that is being promoted by the project and actively participates in favoring initiatives.

After determining the stakeholder's position, position intensity must be identified, considering the following:

- High collaborative: has commitments and responsibilities that are established with the promoted change and actively participates in activities that favor the change. Has initiative and it is part of his institutional plan or day-to-day activities.
- Medium collaborative: participates in activities that promote change and assumes some responsibilities, nonetheless, he has no initiative and it is not part of institutional plan.
- Low collaborative: assists some activities, shows in favor of the initiative but does not assume responsibilities toward it.

- High opposition: publicly shows his opposition to the promoted change and those involved. His/her interests and activities are against the wanted results and represent a threat.
- Medium opposition: has an attitude contrary to the promoted change but does not make it public. His interests and activities are opposed to the expected results.
- Low opposition: has opinions contrary to the promoted change but he takes no active role in promoting them.

4. Locating the stakeholders in the key stakeholder map and calculate the indicator for the level of collaboration of strategic stakeholders.

The stakeholders are located in the map (Appendix 3) according to their position and the sum of the number of stakeholders is placed in each quadrant.

A value is assigned in the synthesis table to each of the positions according to the intensity, considering that the collaborators have a positive value and the opposition a negative one:

- High intensities: 1
- Medium intensities: 0.5
- Low intensities: 0.25
- Neutral: has no value

The indicators value is done by applying the formula: ∑ of the opposition - ∑ of the collaborative= X, where X corresponds to the score of the Stakeholders Map and will be the indicator to evaluate the level of collaboration of strategic stakeholders.

Up to 0.15	(0) Very low collaboration from strategic stakeholders
From 0.16 to 0.30	(1) Low collaboration from strategic stakeholders
From 0.31 to 0.45	(2) Regular collaboration from strategic stakeholders
From 0.46 to 0.60	(3) Good collaboration from strategic stakeholders
Greater than 0.60	(4) High level of collaboration from strategic stakeholders

6.3 Establishment of Local Funds

As noted in 6.1, several alternatives can be used to leverage and operate financial resources for an ARA program, ranging from full-fledged water funds and/or trusts to local water funds. A first step required is to conduct a stakeholder analysis (chapter 6.2), which will help define the institutional context and determine if an existing financial mechanism can be utilized (appendix 2). It is very important to avoid duplicating institutional arrangements. It is best to use the existing institutions according to their mandate, thus avoiding bureaucracy and minimizing transaction costs.

If there is an existing financial mechanism, then the next step is to define how it can be used for the ARA program. If there is no existing financial mechanism, then the first step is to establish a management committee along with regulations to determine the objectives and functions. Box 6.2 presents an example of the how a management committee was structured in a Pride for ARA campaign. The management committee can decide the best option for creating the water fund (i.e., municipal agreement, inter-institutional agreement, ordinance).

Finally, an analysis of water fees coupled with an analysis of financial needs for ARA contracts should be conducted to determine the water users' contributions (and other funding sources). Pride for ARA campaign activities can help raise the awareness of local resident concerning their responsibility for watershed conservation.

6.4 Designing and Negotiating ARAs with the Landowners

Negotiating ARAs with landowners who have water regulating ecosystems is a process that has several angles. The local conditions of the landowners will dictate the direction of the process.

Initial approach

Once the priority areas have been identified, it is important to have an initial approach with the landowners to socialize the process. The approach can be conducted on an individual basis or collectively through interviews, workshops, focal groups,

Management Committee in the Amoju-Jaen Pride Campaign, Peru

Management Committee in the Amoju-Jaen Pride Campaign

The Amoju-Jaen Pride campaign is conducted by the municipality to protect the ecosystems that provide water to the residents of Jaen. A management committee was established under the law,[16] as an autonomous, nonprofit, technical, productive and environmental entity to benefit the residents by improving the quantity/quality of the water. The main goal is to protect the ecosystems in the area of hydrological importance and the adjacent conservation area by promoting, negotiating and managing a conservation fund for ARA.

The management committee is responsible for:

- generating and disseminating information and progress of the ARA contracts;
- sensitizing the population about the reciprocal benefits of the ARAs;
- leveraging sources of funding to ensure financial sustainability;
- coordinating, designing, and approving the plans, strategies and actions to ensure water provision;
- promoting and strengthening surveillance activities:
- designing the negotiation process for the ARAs and promoting a compensation mechanism;
- defining sanctions and other corrective measures in the ARA contracts, and monitoring compliance and impacts;
- contributing to achieve a sense of recognition for the goods and services provided by the watershed;
- offering a space for conflict resolution;
- financing programs and projects.

The committee included representatives from the local government, local water authority, local water company (EPS Marañón SRL) and the water-users board. The agrarian agency (and other public and private institutions) has a predominant role in conducting the ARA program and making decisions regarding the financial investment in the watershed. The committee's structure includes an ordinary and extraordinary Assembly, a stewardship council, president, vice-president, secretary and treasurer. The statutes were approved and notarized, and a work plan for the first year was drafted by a technical commission appointed by the committee and approved in ordinary session.

Source: Janner Javier Valderrama Tapia, Amoju-Jaen Pride for ARA Campaign Manager. Personal Communication.

16. Civil Code, Law No. 27972: Organic Law of Municipalities; Law No. 28611: Environment General Law.

assemblies, surveys and other methods that will allow implementers to identify the landowners' interest in participating. Communication with landowners can involve several approaches to socialize the process. Given that the objective is to generate trust with the landowners, it is ideal to initiate the process with local allies who are considered leaders in the area (landowners, representatives from local producers organizations, aqueducts representatives, cooperatives and others). This enables the ARA process to be accelerated.

Land tenure analysis

Once landowners interested in participating have been identified, it is necessary to ensure the land tenure in order to have recognition from the relevant authorities. In some cases, legal studies to define land tenure are necessary, while in other cases it has been sufficient to have the property's tenure acknowledged by neighbors and local authorities. This will depend on local conditions and the legal framework of each country. However, it is important to avoid signing contracts with individuals and groups who are illegally occupying the land or whose situation could generate social or legal conflicts.

Economic valuation

An important element in the ARA process is to determine the reference value that will determine the costs of the compensation offered to the landowners. This can be conducted by estimating the *opportunity cost,* defined as the value of the best second option lost from conducting the action (Vega and Vega 2002). In some places, studies regarding the opportunity cost have already been conducted, and the values should be used for reference only. Using this reference point in negotiating contracts with landowners should not be employed upfront, but rather, can be used in the investigation of needs and benefits for the stakeholders being considered.[17] This value can be obtained through informal interviews with landowners. Thus, a reference value can determine the maximum cost that the landowners' compensation will have in the ARA negotiation.

In Pride for ARA campaigns there is another type of valuation that might be intangible but can still impact landowners' decisions. It has to do with the recognition landowners will get within the water users community from participating in the process and the development of alternative productive practices that ideally breach other non-traditional markets and generate a higher family income (e.g., certified honey, organic coffee markets, ecotourism).

Compensation identification

Incentives for program participation can be identified through interviews, workshops, focus groups and/or surveys. Although incentives can be varied (Forest Trends and the Katoomba Group 2008), Pride for ARA campaigns promote incentives that are a form of in-kind compensation readily and openly accepted by the landowner where the Pride for ARA protection/restoration/regeneration will occur. Therefore, the investment to be made in the property would provide goodwill and commitment on the part of the owner to instill the desired land-use practices to reduce threats to the water-regulating ecosystem. In the Pride for ARA campaigns, landowners from different sites have been mainly inclined towards such in-kind compensation as:

- Land-tax exoneration
- Technical assistance for agriculture and livestock production
- Organic fertilizers
- Septic tanks to reduce sewage disposal into the river
- Community projects (for collective properties)
- Barbed wire to isolate areas
- Bee hives for apiculture
- Troughs for livestock
- Seeds and agriculture/livestock supplies

Land zoning

Prior to negotiating and signing ARA contracts, a

17. Since the first Pride for ARA campaigns, in regions where the projects have succeeded, Rare has observed no instance in which the identified benefits exchange has come close to the region's real opportunity cost.

land zoning process should be implemented with authorization from the landowner. This process helps identify different land-use practices and generates hard data for negotiations. For example, negotiating with the landowner the number of hectares of water regulating ecosystems (forests, páramo) to conserve, and the areas to be restored/isolated (riparian areas currently used for productive practices). Land zoning generates information to negotiate with the landowners and define the baseline for future monitoring to evaluate compliance with the contracts and the results from conservation efforts.

Negotiating contracts that generate conditionality

Once appropriate landowner candidates for signing ARA have been identified, and the land zoning and compensations have been identified, the process can advance to the negotiation phase. Negotiations culminate with a long-term agreement signed by the landowners with water regulating ecosystems on their property and the local institutionality.

The contracts should define the annual in-kind compensations for landowners and the conditions landowners have to meet, which will be monitored by the signing partner. Some experiences in PES have demonstrated the importance of developing written contracts under the aforementioned conditions (Asquith and Wunder 2008).

Monitoring and follow up of ARA contracts

The organization that leads the ARA process requires a technical team to periodically monitor the compliance with the established conditions in the contract, before issuing the annual compensations or renewing the contracts once these have culminated. Independent verification by third parties and experienced environmental auditors, can also be critical to the success (Forest Trends and the Katoomba Group 2008).

6.5 Implementing and Monitoring the ARAs

In order to establish ARAs at a site, basic information needs to be collected during the planning phase of a Pride for ARA campaign. The ARA mechanism can be implemented once the following required conditions have been established: fund creation; downstream fund collection system; knowledge and willingness of residents to contribute to protecting the upstream ecosystems; identification of priority sites for upstream conservation; owner's willingness to sign contracts; and support from the local authorities.

The implementation of ARAs starts with initial negotiations with the landowners whose land has been identified as priority; it becomes effective once the landowner has signed an ARA contract.

There are different types of contracts within the ARA scheme, such as forest conservation; reforestation; and sustainable forest management, including sustainable land-use practices. Forest conservation contracts require landowners to protect existing (primary or secondary) forest, riparian vegetation or páramos for at least five years, with no land-cover change allowed. Reforestation contracts bind owners to plant native trees on agricultural or fallow land and to maintain those plantations for at least five years. Sustainable forest management and land-use change contracts compensate landowners who prepare a "sustainable land use plan" to conduct low-impact productive activities for at least five years.

Compensation varies across these types of contracts. For conservation contracts, compensation includes technical assistance, building material for fences, and creation of markets for products from plots not designated for conservation, among others. Reforestation contracts may include technical assistance, seeds and seedlings. If reforestation includes timber trees, other assistance may be needed, such as forestry technical assistance, mills or other appropriate machinery, as well as help channeling the product to specific markets. Sustainable forest management and land use-change contracts include such incentives as technical assistance, improved seeds, fencing materials, building markets for specific agricultural or livestock products, and bee boxes.

All incentives should be financed through a local fund[18]

or established institutional arrangement in the region of the project. It is expected that this institutionality will be managed by a local management committee or some similar arrangement that ensures participatory oversight to ensure the funds are used exclusively for upstream biodiversity conservation.

Any ARA contract creates a legal easement that remains with the property if it is sold.

The role of the local authority—whether the municipality, the water company, and other public or private organizations—is key to the success of the program; a strong authority ensures the creation of the local fund (or adequate use of a regional financial mechanisms), the long term monitoring for ARA contracts, and the sustainability of the mechanism.

Monitoring plan for ARAs

The recommended monitoring plan includes two sections: impact monitoring and contract monitoring.

A) Impact monitoring

Based on Rare's experience measuring conservation result (CR) and threat reduction (TR) components, the monitoring activities in the field should be undertaken by individuals identified by the local implementing partner, external experts and/or consultants. The training for this component focuses on basic ecological and water-quality data gathering. This aspect of the monitoring component seeks not only to collect the data but also to create local capacity to continue the monitoring over time, especially after the two-year period of a Pride campaign. To determine the CR, it is important to have a partner in the region with expertise in the use, analysis and interpretation of satellite and radar images to determine changes in the vegetation cover and deforestation ratios.[19] Additionally, a consultant for vegetation analysis is suggested.

The experience from previous campaigns shows that biological monitoring training should take place at the beginning of the planning phase. Monitoring protocols should be easy to follow and the budget should include a line for the monitoring visits.

The monitoring results generate information related to short-term impacts (TR) and long-term impacts (CR) to evaluate the campaign impacts for the two-year project timeline and for at least five additional years,

Incoming data from the field is stored in a database and analyzed to provide monitoring information. Monitoring sites should be established during the planning phase based on information available about the potential ARA sites or properties. Control sites should have the same set of characteristics and located in the same general watershed area.

Proxy habitat:

This part of the monitoring component replicates the water quality monitoring process used in previous Pride for ARA campaigns. It uses simple methodologies and materials that the partners already use or can easily buy. This includes periodic (monthly) sampling of three water quality parameters (fecal coliforms, turbidity and temperature). These proxy parameters help determine the level of regeneration along the riparian areas or target forested areas kept free of livestock. By inference, if livestock is kept from these areas, plant regeneration will occur. This will trap/slow down the sediment and reduce the coliform load reaching the streams. Studies have also shown that riparian areas are biological corridors through which many species move. They also include important elements of local ecosystem adaptation to potential climate change scenarios (Montgomery 1996). By allowing ecosystem regeneration, the project helps increase habitat for hundreds of endangered species.

B) Contract monitoring

Monitoring contract compliance includes at least two visits per year to the properties that are part of the scheme by one or more members of the committee that established the financial system. These visits are to ensure that the landowner's commitments included

18. As noted in chapter 6.1, regional financial mechanisms can be used.
19. While Pride for ARA campaigns are being implemented, this information is managed internally by Rare's terrestrial monitoring specialist.

Chapter 7

Public Policy and Legislation for ARAs

Natalie Rodríguez-Dowdell and Oswaldo Contreras

in the contract are being respected and that the compensation system is working as planned.

Certain characteristics define whether a social innovation is well-suited for scale (box 7.1).[20] ARA premises represent the minimum critical specifications for the model, including: **reciprocity,** between at least two clearly defined audiences; landowners that generate an environmental service; quality water with secured provision throughout the year; and water users (i.e., lowland agriculture, domestic sector, hydroelectric plants and private industry) who contribute to compensation for landowners who protect the habitats.

ARAs reflect local and global benefits. Landowners, water users and the community at large reap local benefits, while global benefits are seen in of biodiversity and climate-change adaptation and mitigation. ARAs are **based on a voluntary agreements** between the relevant parties. The agreement for the upstream areas is reflected in an ARA contract, and water users pay to provide incentives for landowners who protect those areas. In several countries, payments are included in the water bill. However, it is important to maintain transparency in the mechanism. Other premises include **Local Institutionalization, Permanent Financing** (chapters 6.3 and 6.1), **Conditionality and Additionality** (chapter 6.2). In addition, ARAs are based on a **Negotiation Process** (chapter 6.4).

Box 7.1.Elements for Scalability:

- Minimum critical specification
- Self-reinforcing models (profitable, gratifying, clear signs of success)
- Disseminated via training/capacity building
- Build growing demand
- Ensure capital/financial needs
- Entrepreneurial "bet-and-exit" strategy
- Economies of scale and scope

Regarding a self-reinforcing model, it is important to note that the first Pride for ARA campaigns (2010–2012) received funding from the Global Environment Facility (GEF). From the year they were implemented (2010) to date, these campaigns have achieved: 263 long-term agreements to directly protect 16,450.63 hectares and indirectly protect 106,929.10 hectares[21] in ten sites in the Andean region (Ecuador, Colombia, Peru and Bolivia). The results were particularly attractive to many partners and stakeholders, culminating in the launch of a second group of Pride

20. Personal communication, Rare CEO Brett Jenks (Rare's retreat, April 2013).

21. Indirect impact refers to the provision of more protection to a conservation unit (i.e., natural protected area or vulnerable ecosystem) from, and integrated management scheme applied to, the adjacent territory (e.g., ARA contracts located in area adjacent to a Natural Protected Area, thus providing a buffer zone).

for ARA projects in 2012-2014. For this new project group, Rare received 130 applications from interested partners wanting to be considered. The Pride for ARA concept was well received and created a high demand for this approach by partners in the Latin America region, which prompted Rare to develop an innovative approach called **replication centers.** The first of its kind was launched in 2013 with important results on the ground.[22] This replication center was launched in Ecuador and utilized the capacity gained by a former campaign manager (now known as alumnus), who mentored three colleagues from other municipalities to implement Pride for ARA campaigns in their watersheds. This is an example that the program can be disseminated, generating further conservation results beyond the original sites.

The clearest sign of the Pride for ARA campaigns building demand and scale comes from the Pride for ARA projects launched in January 2014 with CVC, the environmental authority in Valle del Cauca, Colombia.CVC, convinced by the methodology and highly committed to Pride for ARA campaigns, asked Rare to initiate a set of campaigns in seven additional watersheds.[23]

Advisory Council

The first set of Pride for ARA campaigns (2010–2012), financed by the Global Environment Facility (GEF), established an advisory council with representatives from governmental and non-governmental organizations in Ecuador, Colombia, Peru, Bolivia and Mexico (appendix 3).

The objectives of the advisory council are:

- To advise Rare's Latin America Pride for ARA program to achieve the highest conservation result possible in key biodiversity water regulating ecosystems in these countries.
- To disseminate the Pride for ARA campaign technology and social marketing approach.
- To support the scaling of the Pride for ARA campaign initiative in each of the participating countries to complement existing government PES or compensation programs.

The functions of the advisory council are:

- To advise Rare concerning the implementation of the ARA program
- To inform about national public programs to establish synergies with the ARA program
- To inform about financing opportunities in the different countries to develop Pride for ARA campaign cohorts
- To establish partnerships to advance the Pride for ARA program
- To inform about relevant thematic forums identifying possibilities for participation
- To act as spokespersons for the Pride for ARA program and the Pride for ARA campaign methodology at the forums in which they participate
- To inform about relevant public policy themes

22. Through the replication center, 127 hectares for conservation were signed in the sites where the Pride for ARA campaigns had been implemented during the time frame of the campaigns; more contracts continue to be signed..

23. In May 2013, staff from Rare's Latin America region visited the site with CVC to determine whether the watersheds proposed by CVC were suitable for Pride for ARA campaigns. Two out of seven watersheds were eliminated: Anchicaya and Guabas. Anchicaya was eliminated because no reciprocity could be established since the community included both the service providers and water users and the problems were related to infrastructure (faulty water tank). Guabas was eliminated because, though it had been part of a natural protected area since 1936, it lacked a management plan, and the landowners didn't trust the institution. A Pride for ARA campaign was decided against, with the recommendation that the institutions work to update the area decree to reflect current environmental and socioeconomic conditions. The seven watersheds selected for GUAD 12 were (1) Rut, (2) Bitaco, (3) Paila, (4) Pance, (5) Guachal, (6) Sonso and (7) La Guinea.

and incorporate them into the discussions of the Advisory Council to identify synergies

The advisory council meets quarterly[24] and offers an important platform for discussions to guide the Pride for ARA program. Undoubtedly, having key representatives from the countries where Pride for ARA campaigns have been implemented is essential to scale-up and identifying venues to present the Pride for ARA campaigns as a viable solution for watershed and water topics that occupy much of public policy today. It also helps national, regional and local authorities to see this approach as a complement to existing public and/or private programs with biodiversity conservation objectives.

Legislation

In terms of relevant international agreements, Pride for ARA campaigns help achieve local results that are aligned with several aspects of the Convention on Biological Diversity (CBD) and the Climate Change conventions. CBD emphasizes integration of local participation and social aspects into conservation instruments. In terms of climate change, the contracts signed can help mitigate climate change or adapt to its effects. For instance, a well-managed forested watershed can help minimize the impacts from natural phenomena.

Regarding national legislation, there are several laws and regulations in countries where Pride for ARA campaigns are being implemented that can be applied to establish an ARA program locally (boxes 7.2, 7.3, 7.4 and 7.5).

24. One of the yearly meetings is conducted in person; the rest are conducted remotely. Rare Latin America proposes the meetings' objectives and agenda, with input from the advisory council. In addition, Rare Latin America elaborates the minutes from the meetings which are distributed among the members along with quarterly newsletters from the Pride for ARA program. Finally, advisory council members can access additional information about the Pride for ARA campaigns on the ARA Facebook page (https://www.facebook.com/groups/658881844157248/).

Box 7.2. Legal Framework in Ecuador Relevant to ARAs

Legal Framework in Ecuador

Ecuador's Constitution refers to Nature's Rights (Chapter 7, Articles 71, 72, 73) noting that any person, community, people or nationality can demand the public authority for the rights of nature to be upheld. In addition, the State is required to incentivize natural and juridical persons, and collectives, to protect nature. The State is also required to apply precautionary or restrictive measures to activities that might accelerate the extinction of species, destruction of ecosystems or the alteration of natural cycles. Article 225 refers to the entities that integrate the de-centralized autonomous regime in the public sector. De-centralized Autonomous Governments constituted by municipal councils may issue Ordinances (Art. 264) according to the Municipal Regime Organic Law and Article 13 of the Environmental Law. Art. 264 allows municipal governments the following exclusive competencies: (1) plan the cantonal development; (2) exercise control over the use and occupation of the canton's territory; (3) provide public services such as potable water, sewage, residual water treatment, solid waste management, environmental sanitation; (4) create, modify or suppress ordinances, tariffs and special contributions for improvements.

In Ecuador, obligatory, voluntary and budget assignations can function to support the financial mechanisms. Ordinances, which bind an agreement, define the contributions from water users. De-centralized Autonomous Governments have the legal obligation to provide funds from the annual budget to protect the water sources. Thus, in terms of ARAs, Permanent Financial Mechanism and contributions from water user should be included in the Municipal Planning.

Art. 54 of COOTAD (Territory, Autonomy and De-Centralization Organic Code), authorizes the municipalities to plan and manage the territory and control pollution. Watershed management is established with three key goals: (1) protect forest and páramo remnants as a first option for negotiation, as it implies in most cases the least of investments and compensations; (2) restore riparian areas and other hydrological important areas, primarily to recover their natural filter-effect for water quality; (3) incorporate productive management practices that favor the hydrology and biodiversity of the watersheds.

Box 7.3. Legal Framework in Colombia Relevant to ARAs

Legal Framework in Colombia

Colombia has a broad and innovative legal environmental framework in favor of PES mechanisms such as ARAs. Law 99 of 1993 determines that it is the State's duty to consider environmental costs and the use of economic instruments in actions associated with the prevention, correction, restoration and conservation of the environment. In this context, Article 116 of the aforementioned law authorizes the President to establish an incentive regime, which includes economic instruments, to promote the sustainable use, restoration and conservation of natural ecosystems by private landowners. Furthermore, the National Development Plan (Law 1450 of 2011), broadens investments from departments and municipalities, stating that no less than 1 percent of the current income should be invested, each year, in areas of strategic importance for the conservation of hydrological resources, that supply water to municipal, district and regional aqueducts (Ministerio de Ambiente and Desarrollo Sostenible 2012). This norm was recently regulated by Decree 953 (May 17, 2013), describing how the compensations from the 1 percent of the current income from the municipalities can be used in PES schemes, including ARAs.

Other legislation also allows the implementation of ARAs, such as:

- Existence of Retributive Fees supported by Article 42 of Law 99 from 1993 (Casas and Martínez 2008).
- Water use fee and water efficient use fee supported in Article 43, Law 99 from 1993 and Law 373 from 1997 (Casas and Martínez 2008).
- Forest incentive certificate established by Law 139 from 1994 (Casas and Martínez, 2008).
- Transferences from the electrical sector defined by Article 45 of Law 99 from 1993 (Casas and Martínez 2008).
- Municipal tax exoneration for landowners who participate in conservation, Article 42 of Law 388 and Decree 1512 from 1998 (Alcaldía Municipal de San Vicente de Chucurí *et al.* 2011).
- Voluntary water users contributions via the water companies, Law 142, 1994 (Salazar 2011).

Box 7.4. Legal Framework in Peru Relevant to ARAs

Legal Framework in Peru

Peru's Constitution determines that the State is obligated to promote the conservation of biological diversity and natural protected areas (Art. 68). The General Environment Law (Law 28611) gives the right to any person to responsibly participate in the definition and application of environmental policies and measures (Art. III). Art. XI refers to the principles of environmental governance. Article 3 defines the role of the State in environmental matters with regard to policies, norms, instruments, incentives and sanctions necessary to guarantee the rights and compliance with obligations. Article 68 refers to development plans and municipal territorial plans. Article 90 notes that the State should promote and control the sustainable use of continental waters through the integral management of the hydrological resource; promoting investment from the private sector for its sustainable use. Chapter 2 discusses Biological Diversity Conservation, and the criteria for the development of policies are in Article 97. Environmental quality is referred in Chapter 3, Article 113. Regarding water for human consumption, the access to water is a right of the population. The State is required to ensure the surveillance and protection of water sources. If there is shortage in its provision, preferential use is given to supply the population's needs before other uses (Article 114). Finally, Article 120 notes that the State is in charge of the protection of water quality.

Law 29263 (modifies the Penal Code) includes Title XIII for Environmental Felonies, regarding environmental pollution (Article 304) and citing penal punishment for environmental crimes of four-six years and including day-fines (100 to 600 days). The Municipal Organic Law (Law 27972), Article 73, defines municipal competency in environmental issues. Municipalities can issue general technical norms for zoning, land use, environmental protection and conservation. In addition, municipalities are responsible for promoting regional development plans.

Obligatory tariffs, tax incorporation and budgetary assignations apply. The National Superintendence of Sanitation Services (SUNASS) is in charge of approving formulas and tariff structures according to Article 31 of the General Law for Sanitation Services. A Project for Modernization of the Sanitation Services Law determines in Article 15 that SUNASS, in coordination with municipal water companies, should include environmental compensation mechanisms to promote an efficient use of water and waste water treatment. Currently, a bill for Environmental Services Retribution is being analyzed in Congress.[25]

25. M. Mavila, personal communication, November 5, 2013.

Box 7.5. Legal Framework in Mexico Relevant to ARAs

Legal Framework in Mexico

Mexico's Constitution Article 115 determines the competence of the municipalities. The Environmental and Protection Law (LGEEPA), Article 21, determines that the Nation, States and the Federal District, in their respective competencies, will design, develop and apply economic instruments to incentivize compliance of environmental policy objectives geared to: promote a change in behavior in the people that conduct industrial, commercial and services activities, in order that their interests can be compatible with the collective interests of environmental protection and sustainable development. Article 22 considers economic instruments, normative and administrative mechanisms, financial or market, through which people can receive environmental benefits and the costs that their economic activities generate, incentivizing them to conduct actions in favor of the environment. Article 36 determines that the Environmental Ministry (SEMARNAT) will issue the official Mexican norms in environmental matters and for the sustainable use of natural resources with the objective (among others) of stimulating or inducing economic agents to reorient their processes and technologies for environmental protection and sustainable development. Article 20 of the Wildlife General Law (LGVS) states that compensation mechanisms and economic instruments can compensate the inhabitants for the costs of conservation.

Voluntary, obligatory and budgetary assignations apply for watershed conservation. The Forestry General Development Law is the framework for Forestry Programs, such as the Payment for Environmental Services conducted by the National Forestry Commission (CONAFOR).

Chapter 8

Conclusions

Natalie Rodriguez-Dowdell and Kevin Green

Tropical cloud forests and páramo ecosystems important for water provision (among other environmental services) have experienced the highest deforestation rates in the world (Myers *et al*. 2000). From 2008 to date, Pride for ARA campaigns implemented by Rare and local partners in Ecuador, Colombia, Peru, Bolivia and Mexico have directly protected 16,450 hectares and indirectly protected approximately 106,930 hectares of these ecosystems using 263 ARA contracts. ARAs help people become accountable for their actions and aware of their responsibility for the use of environmental services. ARAs establish reciprocity between the hydrological service providers and the users in order for both parties to work together in furthering conservation efforts.

As opposed to traditional and nationally driven PES programs, ARAs are built locally, providing a local solution to local and global problems and taking advantage of the strengths of the local institutional arrangements. Furthermore, with a few exceptions, ARAs do not promote cash-payments, but focus rather on reducing a particular ecosystem threat caused by land-use practices, working to improve those practices with the participation of the landowners. From a conservation and sustainability perspective, this process ensures appropriation of the mechanism and a sustained behavior change. As noted in some of the case studies presented, a fundamental part of the mechanism is to invest in local capacity-building, minimizing the dependence of landowners on external sources, and implementing a clear and transparent monitoring and evaluation system.

The basic components for functional ARAs are a permanent financial mechanism, long-term agreements that generate additionality, and local institutionalization. From the experience in the Andean countries and Mexico, it is clear that the overall legal framework of these countries is sufficient to establish these components. Thus, the focus is once again on the local levels where ordinances, regulations and other legal instruments may be used to establish the Pride for ARA program.

In terms of public policy, Rare's Pride for ARA advisory council has evolved into a more prominent advisory role, ensuring higher conservation results and taking advantage of diverse fora or public policy initiatives to scale up the program. Throughout this document, clear general steps have been presented to give practitioners an overview of how ARAs can be built locally. Past experience has showed that Pride for ARAs can be built and implemented under very diverse circumstances. An important element in all of these experiences resides in Pride, which utilizes social marketing strategies with specific demographics (mainly landowners, water users and authorities) to mobilize local communities in supporting the Pride for ARA programs. This approach employs a bottom-up approach and makes it a socially acceptable norm.


¡Cuídame!
Soy Los Pulmones del mundo
C.E.N "S.J.
2"C" segunda

References

Alcaldía Municipal de San Vicente de Chucurí, Fundación Natura, and the A.P.C. Manantiales de Chucurí. 2011. Convenio de Cooperación No 016 de 2011. Colombia.

Ariely, D., A. Bracha, and S. Meier. 2009. Doing good or doing well? Image motivation and monetary incentives in behaving prosocially. *American Economic Review* 99 (1): 1-13.

Asquith, N. 2013. Investing in Latin America's water factories. *ReVista: Harvard Review of Latin America* 12 (2): 21-24.

———. 2014. Governing the commons through reciprocal watershed agreements: An alternative to payments for environmental services. Manuscript in review.

Asquith, N., and M. Vargas. 2007. Fair deals for watershed services in Bolivia. *Natural Resources Issues* 7. London: International Institute for Environment and Development.

Asquith, N., M. Vargas, and S. Wunder. 2008. Selling two environmental services: In-kind payments for bird habitat and watershed protection in Los Negros, Bolivia. *Ecological Economics* 65: 675–684.

Asquith, N., and S. Wunder, eds. 2008. Payments for Watershed Services: The Bellagio Conversations. Santa Cruz de la Sierra, Bolivia: Fundación Natura Bolivia.

Bénabou, R., and J. Tirole. 2006. Incentives and prosocial behavior. *American Economic Review* 96 (5): 1652-1678.

Bennett, G., N. Carroll, and K. Hamilton. 2013. *Charting New Waters: State of Watershed Payments 2012.* Washington, D.C.: Forest Trends.

Bishop, J., and N. Landell-Mills. 2002. Forest environmental services: An overview. In *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development,* ed. S. Pagiola *et al*. London: Earthscan.

Bond, I., and J. Mayers. 2010. Fair deals for watershed services: Lessons from a multi-country action-learning project. *Natural Resource Issues* 13. London: International Institute for Environment and Development.

Boyd, J., and S. Banzhaf. 2006. What are ecosystem services? The need for standardized environmental accounting units. RFF Discussion Paper 06-02. Washington, D.C.: Resources for the Future.

Brauman, K. A., G. C. Daily, T. K. Duarte, and H. A. Mooney. 2007. The nature and value of ecosystem services: An overview highlighting hydrologic services. *Annual Review of Environment and Resources* 32: 67-98.

Bromley, D. W. 1991. *Environment and Economy: Property Rights and Public Policy.* Oxford: Basil Blackwell.

Bruner, A. G., R. E. Gullison, R. E. Rice, and G. A. da Fonseca. 2001. Effectiveness of parks in protecting tropical biodiversity. *Science* 291: 125-28.

Butler, P., K. Green, and D. Galvin. 2013. The principles of pride: The science behind the mascots. Arlington, VA: Rare.

Buytaert, W., R. Célleri, B. De Bièvre, F. Cisneros, G. Wyseure, J. Deckers, and R. Hofstede. 2006. Human impact on the hydrology of the Andean páramos. *Earth-Science Reviews* 79: 53-72.

Caro, T. M., and P. Scholte. 2007. When protection falters. *African Journal of Ecology* 45: 233-35.

Casas, A., and R. Martinez. 2008. Marcos Legales para el Pago por Servicios Ambientales en América Latina y el Caribe, análisis de 8 países. Washington, D.C.: Organización de los Estados Americanos, Departamento de Desarrollo Sostenible, p. 11.

Connor, R., and S. Dovers. 2004. *Institutional Change for Sustainable Development*. Cheltenham, UK: Edward Elgar Publishing, p. 251.

CORPOGUAVIO (Corporación Autónoma Regional del Guavio). 2012. Final Campaign Report. Guasca, Colombia: CORPOGUAVIO.

Cox, M. C. 2001. Protected areas and population growth: Implications for protected area policy in the 21st century. Master's thesis, University of Michigan.

Daily, G. C. 1997. Introduction: What are ecosystem services? In *Nature's Services: Societal Dependence on Natural Ecosystems,* ed. G. C. Daily. Washington, D.C.: Island Press, pp. 1-10.

Devlin, R. A., and R. Q. Grafton. 1998. *Economic Rights and Environmental Wrongs: Property Rights for the Common Good.* Cheltenham, UK: Edward Elgar Publishing.

Dudley, N., and S. Stolton, eds. 2003. *Running Pure: The Importance of Forest Protected Areas to Drinking Water.* Gland, Switzerland: World Bank/WWF Alliance for Forest Conservation and Sustainable Use.

Engel, S., S. Pagiola, and S. Wunder. 2008. Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics* 65: 663-674.

Ervin, J. 2003. Protected area assessments in perspective. *BioScience* 53 (9): 819-22.

Fiske, A. P. 1992. The four elementary forms of sociality: Framework for a unified theory of social relations. *Psychological Review* 99: 689–723.

Forest Trends, the Katoomba Group, and UNEP (United Nations Environment Programme). 2008. Paso a Paso: Un Manual para Diseñar Transacciones de Servicios Ecosistémicos, pp. 44-46, 52.

Golder, B., and M. Gawler. 2005. Cross-cutting tool, stakeholder analysis: Resources for implementing the WWF standards. Washington, D.C.: World Wildlife Fund. https://intranet.panda.org/documents/folder.cfm?uFolderID=60976

González Guillen, M. 2004. Evaluación del Programa de Pago de Servicios Ambientales Hidrológicos (PSAH) Reporte Final. Ejercicio Fiscal. Zapopan, Mexico: Comisión Nacional Forestal (CONAFOR).

Green, K., A. DeWan, N. Asquith, L. Andersen, M. Pearce, and K. Alger. In review. The index for climate compatible development: A framework for measuring the climate compatible development contributions of payments for watershed services projects. *Ecological Economics*.

Grieg-Gran, M., I. Porras, and S. Wunder. 2005. How can market mechanisms for forest environmental services help the poor? Preliminary lessons from Latin America. *World Development* 33 (9): 1511-1527.

Hanna, S., and M. Munasinghe, eds. 1995. *Property Rights in a Social and Ecological Context. Case Studies and Design Applications.* Washington, D.C.: Beijer International Institute of Ecological Economics and The World Bank.

Hassan, R. M., R. Scholes, and N. Ash, eds. 2005. *Ecosystems and Human Well-Being.* Millennium Ecosystem Assessment. Washington, D.C.: Island Press.

Hayes, T. M. 2006. Parks, people, and forest protection: An institutional assessment of the effectiveness of protected areas. *World Development* 34 (12): 2064-75.

Heller, N. E., and E. S. Zavaleta. 2009. Biodiversity management in the face of climate change: A review of 22 years of recommendations. *Biological Conservation* 142: 14-32.

Heyman, J., and D. Ariely. 2004. Effort for payment: A tale of two markets. *Psychological Science* 15 (11): 787-793.

Klapproth, J., and J. Johnson. 2009. Understanding the science behind riparian forest buffers: Effects on water quality. *Virginia Cooperative Extension.* Publication Number 420-151. Blacksburg, VA: Virginia Polytechnic Institute and State University. http://pubs.ext.vt.edu/420/420-151/420-151.html

Kosoy, N., M. Martinez-Tuna, R. Muradian, and J. Martinez-Alier. 2007. Payments for environmental services in watersheds: Insights from a comparative study of three cases in Central America. *Ecological Economics* 61: 446-455.

Lacerata, N., and M. Macis. 2010. Social image concerns and prosocial behavior: Field evidence from a nonlinear incentive scheme. *Journal of Economic Behavior and Organization* 76: 225-237.

Lee R. N., and P. A. Kotler. 2011. *Social Marketing: Influencing Behaviors for Good.* 4th ed. Los Angeles: Sage Publications, p. 7.

Martinez, R., K. M. Green, and A. DeWan. 2013. Establishing reciprocal agreements for water and biodiversity conservation through a social marketing campaign in Quanda Watershed, Peru. *Conservation Evidence* 10: 42-47.

MEPSI (Municipalidad Ecológica Provincial de San Ignacio). 2011. Ordenanza Municipal No. 017-2011-MEPSI. San Ignacio, Peru: MEPSI.

Ministerio de Ambiente and Desarrollo Sostenible. 2012. 'Guía metodológica para el diseño e implementación del incentivo económico de pago por servicios ambientales – PSA. Bogota, Colombia: Oficina de Negocios Verdes y Sostenibles, pp. 7-8.

Mittermeier, R. A., P. Robles Gil, M. Hoffmann, J. Pilgrim, T. Brooks, C. G. Mittermeier, J. Lamoreux, and G. A. B. da Fonseca. 2005. *Hotspots Revisited: Earth's Biologically Richest and Most Endangered Terrestrial Ecoregions.* Arlington, VA: Conservation International.

Montgomery, G. L. 1996. Riparian areas: Reservoirs of diversity, Working Paper No. 13. Lincoln, NE: NRCS, USDA. Northern Plains Regional Office.

Muñoz-Piña, C., A. Guevara, J. Torres, and J. Braña. 2008. Paying for the hydrological services of Mexico's forests: Analysis, negotiations and results. *Ecological Economics* 65 (4): 725-736.

Myers, N., R. A. Mittermeier, C. G. Mittermeier, G. A. B. da Fonseca, and J. Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.

Pagiola, S. 2002. Paying for water services in Central America: Learning from Costa Rica. In *Selling Forest Environmental Services: Market-based Mechanisms for Conservation and Development,* ed. S. Pagiola, J. Bishop, and N. Landell-Mills. London: Earthscan.

———.. 2008. Payments for environmental services in Costa Rica. *Ecological Economics* 65 (4): 712–24.

Pagiola, S., A. Arcenas, and G. Platais. 2005. Can payments for environmental services help reduce poverty? An exploration of the evidence and issues to date from Latin America. *World Development* 33 (2): 237-253.

Postel, S. L., and B. H. Thompson, Jr. 2005. Watershed protection: Capturing the benefits of nature's water supply services. *Natural Resources Forum* 29: 98-108.

PROFONANPE (Fondo Nacional para Areas Naturales Protegidas por el Estado [Peruvian Trust Fund for National Parks and Protected Areas]). 2007. Instrumentos para el Monitoreo y Evaluación de la Gestión Participativa. Proyecto GPAN. Lima, Peru: PROFONANPE. 28 pp.

Rare. 2012a. Pride for ARA campaign advances ppt. Arlington, VA: Rare.

———. 2012b. Thematic cohort proposal package. Latin America Reciprocal Agreements for Watershed and Wildlife Conservation. Arlington, VA: Rare, p. 8.

Salazar, M. 2011. Método jurídicamente viable a través del cual la comunidad del Municipio de San Vicente de Chucurí acepta realizar un aporte voluntario para el proyecto PSA – Arreglos Recíprocos por el Agua. Patrimonio Natural, p. 5.

Schmeer, K. 1999. Guidelines for conducting a stakeholder analysis. Bethesda, MD: Partnerships for Health Reform, Abt Associates.

Stanton, T., M. Echavarria, K. Hamilton, and C. Ott. 2011. State of watershed payments: An emerging marketplace. Washington, D.C.: Forest Trends.

Stoner, C., T. Caro, S. Mduma, C. Mlingwa, G. Sabuni, and M. Borner. 2007. Assessment of effectiveness of protection strategies in Tanzania based on a decade of survey data for large herbivores. *Conservation Biology* 21 (3): 635-46.

TEEB (The Economics of Ecosystems and Biodiversity). 2010. The economics of ecosystems and biodiversity: Mainstreaming the economics of nature: A synthesis of the approach, conclusions and recommendations of TEEB. United Nations Environment Programme.

Toledo-Ocampo, A. 1996. Apuntes del Seminario de Economía Ambiental. La Valuación Económica de la Biodiversidad: Alcances y Limitaciones. Mexico City: Universidad Autónoma Metropolitana-Iztapalapa.

UNDP (United Nations Development Programme). 2006. Beyond Scarcity: Power, poverty and the global water crisis. Human Development Report 2006. New York: UNDP.

Vaughan, P. 2012. Results of a meta-analysis of the impact of 11 Pride social marketing campaigns on knowledge of, attitudes toward, interpersonal communication about, and adoption of ARAs to reduce deforestation in Latin America: Rare's Guadalajara 8 cohort. Report to Rare and the Global Environment Facility, pp. 12, 30-31.

Vega, E., and M. Vega. 2002. Determinación del costo de oportunidad y clasificación por clases de capacidad de uso (CCU). Heredia, Costa Rica: Instituto de Políticas para la Sostenibilidad (IPS).

Wunder, S. 2008. Necessary conditions for ecosystem service payments. Paper presented at the conference organized by the Conservation Strategy Fund, Resources for the Future, and the Gordon and Betty Moore Foundation: Economics and Conservation in the Tropics: A Strategic Dialogue, San Francisco, January/February 2008, pp. 1-11.

Young, R. A., T. Huntrods, and W. Anderson. 1980. Effectiveness of riparian buffer strips in controlling pollution from feedlot runoff. *Journal of Environmental Quality* 9: 483-487.

Appendices

Clauses suggested for the elaboration of ARA contracts are:

- Contracting parties. Describes the authorized parties, who freely and voluntarily sign the contract on a specific date and place. For an institution to be able to enter into this type of contract, watershed conservation needs to be within the scope of their attributions. Landowners in turn would need to have rights to the property in the form of a deed, or be able to otherwise show proof of tenure (e.g., they have lived on the land for a certain number of years, their neighbors attest to it and is accepted by the institution).
- Background. Refers to the specifications of the institutions and landowners. For institutions, it should include the articles in their bylaws that support the contract. In addition, details of the landowners' property are included, such as deed, name, hectares and productive activity.
- Objective of the contract. Includes the establishment of commitments between the parties to protect and restore a specific watershed that will improve the quality and continued flow of water through the implementation of best practices.
- Commitments. They vary depending on the benefit expected by the landowner and the possibility of intervention in the property. On the side of the institution, they generally include capacity building and goods and services to improve the productive practice (i.e. livestock, coffee production). It is important to include the number of hectares the landowners are willing to commit to conservation.
- Delivery of incentives. It is recommended to include a table describing each incentive (good or service) and delivery timeline per year.
- Total amount of the contract and sources of financing. These are based on the sum of the incentives, and may include a range of sources to fund the contract.
- Duration of the contract. Expected to be a minimum of 5 years contract.
- Authorization documents. The institution may need to annex the Power of Attorney for the person signing the contract. The landowners may need to include copies of their identity cards and land deed.

- Conflict resolution. This section mandates that the parties involved first try to reach an amicable solution through dialogue and negotiation, and if necessary request the assistance of competent agencies.
- Breach of contract. Includes penalties in case of failure to comply with the commitments. It may include partial reimbursement of resources received by the landowners.
- Property rights guarantee. Relevant in cases where the landowners fear that the ARA contract could represent a first step in losing their land. The clause denotes that the ARA contract does not signify a change in the property rights and it does not grant the signing institution any usufruct over the land.
- Special obligations. This section obliges the landowner to disclose in advance to the institution any transfer of rights to the land and to include a clause in the sale contract to guarantee the continuation of the conservation commitments (applies to inheritances too). It also states that the conservation areas can be expanded if agreed upon by both parties, and in that case, addenda to the contract may be included.
- Dissolution. This is a clause for immediate dissolution, if the corresponding institutions become aware of a breach of contract.
- Acceptance and validity of the contract. The section states the conformity of both parties with each of the clauses included in the ARA contract.
- Signatures. Contracts must be signed by the organization in charge of the administration of the financial mechanism, the land owner and one or more witnesses.

Example of ARA contract from Ecuador

Agreement for the implementation of Reciprocal Water Agreements (ARA) between the Public Municipal Utility Company EMAPAL and Mr. Segundo José Tenelema Tamay and his wife Mrs. María Dolores Dután Montero.

CONTRACTING PARTIES

In the city of Azogues, on the 23rd of July, 2013, the contracting parties freely and voluntarily appear to sign the current agreement, on the one hand, EMAPAL, represented by Wilson Marcelo Vázquez Solórzano as General Manager and Tania Parra Solórzano as Legal Advisor, from here on referred to as "EMAPAL EP," and Mr. Segundo José Tenelema Tamay and his wife, Mrs. María Dolores Dután Montero from here on referred to as the "Landowner," owners of the property named "Molobog Chico," located in the Guapan Parish of the Azogues Municipality, Cañar Province in the Cordoryacu Sector, coordinates X=741431 Y=9705167, measuring 1 Ha and located in the Tabacay River Watershed. The contracting parties are legally authorized individuals and agree to sign this contract to implement a Reciprocal Water Agreement (ARA), under the following background and clauses.

1. BACKGROUND

EMAPAL EP is the Public Municipal Utility Company responsible for providing, among others, public potable water services to the Azogues municipality. Under Art. 4, letter j of its constitution ordinance and with the purpose of preserving, conserving and maintaining the ecological surroundings of the hydrological sources; executing and coordinating environmental policies and programs to protect, care and restore the hydrological resources and water sources, forests and natural vegetation of the Municipality, to provide adequate quantity and quality of water for the treatment plants; and acting via the Environmental Section that has been taking actions since 2008 to protect the hydrological resource, the ARA seeks to establish agreements under an alternative environment and negotiate with the landowners whose properties are located in the hydrological watersheds, to identify, negotiate and implement actions of mutual benefit between landowners and EMAPAL EP. These agreements seek to: (i) support the productive activities undertaken efficiently and in the appropriate sites, (ii) promote the conservation/restoration of fragile ecosystems; and, (iii) reduce the pollution of the river; under the framework of the agreement subscribed by both parties. The catchment areas of the Mahuarcay and Uchupucun treatment plants fed by the Tabacay River Watershed, register values for quality indicators surpassing the permissible limits (for example in fecal coliforms) and reflect a water pollution problem. Part of the pollution is attributed to livestock activities in the biocorridor of the Tabacay River Watershed, expanding the livestock frontier and threatening fragile ecosystems. To minimize the risks to the maintenance of the water quality it is imperative to look for effective solutions.

The "Landowner" is the legitimate owner of a plot as it appears in the Testimony of the Public Sale Deed, signed in the presence of the First Notary of Azogues municipality, granted on the 26th of August of 1999 and registered with number 315 in the Property Registry of Azogues, on the 26th of February of 2003. The area of the plot considered in the present agreement is one

hectare, and the main economic activity undertaken is livestock for milk production. The "Landowner" has received the socialization of the technical proposal of the ARA and has voluntarily agreed to it.

DIAGNOSIS.- A participative diagnosis demonstrates the negative impacts on the biocorridor caused by livestock, therefore, improved practices for sustainable livestock will be implemented in the fragmented ecosystems and under the current regulations. With the ARA, "EMAPAL EP" seeks to provide knowledge about these topics in addition to an initial incentive to facilitate the adoption and implementation of improved management practices promoting increased production, improved pasture management in a smaller area in order for fragile ecosystems to be destined to conservation/restoration. This support will be provided for five years during the first stage, so that the changes are progressive and do not affect the economy of the "Landowner"; once the practices are adopted and replicated, the long-term conservation/restoration goals will be achieved.

Based on the previous, the contracting parties agree to subscribe to the present agreement under the following clauses.

2. OBJECTIVE OF THE AGREEMENT

Establish the commitments and mutual contributions between "EMAPAL EP" and the "Landowner" to:

Contribute to the protection of the hydrological watershed of the Tabacay River to improve the quantity and quality of water for Azogues through the implementation of improved livestock practices on sites with the appropriate land-use category.

3. COMMITMENTS OF THE PARTIES

3.1. Commitments of EMAPAL EP

a. Delegate to the program and its environmental technical staff so they may, on its behalf and representation, implement and monitor the present Reciprocal Water Agreement.

b. Support the improvement of pastures in 500m2, equivalent to the area the "Landowner" has destined for riparian forest, with the purpose of demonstrating best practices of fertilization and pasture management that can be later replicated on other sites with appropriate livestock land-use category.

c. To fulfill the previous commitment, the following incentives will be distributed during a five-year period:

Laboratory analysis as follows:

Incentive	Total No.	Delivery Schedule					Cost per Analysis ($)	Total Cost for 5 Years ($)
		Year 1	Year 2	Year 3	Year 4	Year 5		
Soil Analysis	2	1		1			15	30
Pasture Analysis	1		1				20	20

Parasite Analysis	2	1		1			15	30
TOTAL	5	30	20	30	0	0		80

Delivery of supplies, fertilizers and pasture seeds as follows:

Incentive	**Unit Price**	**Total No.**	**Delivery Schedule**					**5-Year Budget ($)**
			Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	
Kilos of calcium carbonate (CaCO3) for soil treatment	0.07	150	50	50	50			10.50
Kilos of fertilizer for maintenance fertilization	0.8	52.5	15	15	11.5	7.5	3.5	42.00
Kilos of fertilizer for initial fertilization	0.8	26	7.5	7.5	5.5	3.5	2	20.80
Pounds of seeds for pasture mix	32.82	21.28	6.1	6.1	4.58	3	1.5	698.41
Kilos of organic fertilizer (Ecuabonaza)	0.23	472.5	135	135	101.25	67.5	33.75	108.68
Water pipes	7	5	5					35
Water troughs	50	1	1					50
Total			337.75	252.75	150.70	122.785	61.3925	965.38

d. Training for the “Landowner” in improved practices for fertilizer, pasture and livestock management:

Incentive	**Total No.**	**Delivery Schedule**					**Cost per Incentive ($)**	**Total Cost 5 years ($)**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**		
Training Workshops (theory/practice)	15	4	5	2	0	4	100	1,500
TOTAL VALUED	15	400	500	200	0	400		1,500

e. Provide technical support and guidance to the “Landowner” so they may implement and adapt the improved livestock practices on their property. “EMAPAL EP” will conduct at least two technical visits per month as follows:

Incentive	**Total #**	**Visits Schedule**					**Cost per visit ($)**	**Total Cost 5 years ($)**
		Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**		
Technical support/guidance site visits	120 days	24	24	24	24	24	15	1,800
TOTAL VALUED	120 days	360	360	360	360	360		1,800

f. Provide annual veterinarian support, or as needed, by the “EMAPAL EP” technician using a veterinarian basic kit to support the implementation of improved livestock management practices in the property. Valued in US$313 as follows:

Incentive	Unit Price	Total #	Valued Budget					5-Year Budget ($)
			Year 1	Year 2	Year 3	Year 4	Year 5	
Veterinarian Basic Kit	62.6	5	62.6	62.6	62.6	62.6	62.6	313
Total per year			62.6	62.6	62.6	62.6	62.6	

g. Deliver posts, wire, staples, workforce, meals and plants to build the initial enclosure for the riparian forest, for a value of US$375.30 as follows (materials delivered the first year).

Material	Unit Price	Quantity/Plot	Total Cost US$
Cement posts	9.50	10	95.00
Eucalypt posts	2.00	30	60.00
Barbed wire	85.00	1	85.00
Staples	1.00	1	1.00
Workforce	20.00	3	60.00
Meals	2.50	3	7.50
Plants	0.40	167	66.80
Total			375.30

h. From year six, “EMAPAL EP” will arrange for additional incentives only if no improvements in the production have been registered, in which case the respective addendum will be signed.

i. Designate a technician from the Environmental area as the Administrator responsible for the present agreement.

3.2. Commitments of the “Landowner”

a. To leave a plot of land, 5 meters wide and 110 meters long, adjacent to the Cordoryacu Stream that runs through the property, representing an area of 500m2 for permanent restoration and conservation of the riparian forest; no livestock will be allowed in this plot to facilitate regeneration. The livestock will be corralled but in case the herd is again allowed to pasture freely, the area for riparian forest may, under mutual agreement, be increased.

b. To maintain in good condition the fences for the riparian forest providing the workforce and materials needed.

c. To maintain for five years a plot of 500m2 (area equal to the riparian forest) to apply the knowledge learned in the capacity building process with “EMAPAL EP.” In this plot, the “Landowner” will use the supplies provided by “EMAPAL EP.”

d. To actively participate, including his/her support staff (family or employees), in the theory and practice training workshops conducted in coordination with “EMAPAL EP.”

e. To replicate the responsible livestock training received from the technician from the Environmental Department of "EMAPAL EP." in the rest of the area of his/her land that has this type of land-use category according to the Annual Improvement Plan to be prepared jointly with "EMAPAL EP" during the capacity building and technical assistance process. This plan will be implemented during the first year of execution of the ARA and will be annexed to the present agreement, as a livestock improved practice tool.

f. To not increase the farming frontier from the date of subscription of this ARA agreement.

g. To maintain and comply with the agreed Land-Use Zoning Plan prepared during the ARA negotiation process and detailed in the map annexed to this agreement and the following table:

Zoning	Area		Observations
	Hectares	Percentage	
Area for sustainable livestock	9,450m2	94.5	
Area for riparian forest restoration	550m2	5.5	This area may be increased if the "Landowner" decides to extend it.
Total		100	

h. To coordinate with the "EMAPAL EP" ARA program technician, the actions to implement, monitor and innovate the ARA.

i. To inform "EMAPAL EP" about any action or fortuitous incidents that affect the conservation and/or restoration areas, or that could alter the normal compliance with the agreement.

4. DELIVERY OF THE INCENTIVES

The delivery of the incentives will start with the provisions of materials to isolate the plot of riparian forest and the planting of native plants. Later, the materials and supplies to improve pasture and livestock management will be delivered according to Item 3.1 of the commitments clause.

The incentives will be delivered according to the Annual Improvement Plan. Before each delivery, the ARA program technicians will verify compliance with the commitments and issue a report to the Environmental Department of "EMAPAL EP." If the report is favorable, the incentives will be delivered and the corresponding letters signed. The incentives will vary in terms of amount of supplies if changes in the riparian forest plot are verified, in such case, the additional area should be described in the delivery-reception letters.

In year five, "EMAPAL EP" and the "Landowner" will review the changes obtained from the incentives received and the restoration plot established. The aspects to be reviewed are: pasture productivity, production costs, income, and restoration of the riparian forest and conservation of the intervened areas.

5. TOTAL AMOUNT OF THE AGREEMENT AND FINANCING SOURCE

The total amount of the agreement including the value of the incentives that the “Landowner” will receive in the form of services, materials and supplies is US$5,033.66 (five thousand thirty-three dollars and sixty-eight cents). “EMAPAL EP” will finance these resources from budget line 63.06.05.17: Tabacay Watershed Conservation Project RARE. This amount has been committed in the 2013 Annual Plan and in the corresponding Annual Plans for next four years.

From year six onwards will commit to the creation and approval of an ordinance for the “Conservation, restoration and recovery of the water sources, hydrological catchment areas, fragile ecosystems and other priority areas for biodiversity protection, environmental services and natural heritage of the Azogues Canton”.

In case of fluctuation of prices for the supplies and goods, the quantity for each incentive, detailed in the fourth clause of the present agreement, will be maintained as reference.

The incentives will be granted each year as follows:

Year #	Amount
FIRST	743.05
SECOND	272.75
THIRD	220.70
FOURTH	122.79
FIFTH	61.39
TOTAL (US$)	1,420.68

Note that this line corresponds to the economic contribution delivered.

The valued contribution is US$3,613. For a total amount of US$5,033.68 (five thousand thirty-three dollars and sixty-eight cents).

6. TERM

In accordance to the duration approved by “EMAPAL EP,” the present agreement will have a term of five years, from the date of subscription.

7. AUTHORIZATION DOCUMENTS FOR THE AGREEMENT

The following documents are added to the present agreement:

a) Identity documents for the landowner and his wife
b) Copy of the public deed for the land, registered in the Property Registry of the canton
c) Zoning plan for the property
d) Copy of the appointment letter for the “EMAPAL EP” General Manager

8. CONFLICT RESOLUTION

For conflicts originating in the implementation of the present agreement and compliance with its corresponding commitments, the parties agree to the following procedure:

1. Seek an amicable resolution based on dialogue and direct negotiation in a term of no more than 30 days after one of the parties notifies the conflict to the other in writing.
2. If the above is not sufficient, the parties agree to submit to the competent instances in Azogues.

9. NON-COMPLIANCE

In case of non-compliance with the present agreement and that the instances mentioned in the previous clause have been exhausted, the "Landowner" is obligated to return in cash to "EMAPAL EP" 75 percent of the total value received according to the delivery-reception letters, the visits to the property and training records, whether the incentive was delivered in the form of goods and/or services, plus the respective legal interests.

If non-compliance is due to natural phenomena, cases of extreme force or fortuitous incidents duly verified, the "Landowner" will be exempt from the above reimbursement. If the non-compliance is caused by "EMAPAL EP" and the aforementioned instances have been exhausted, the "Landowner" may consider the present agreement terminated.

10. RESPECT OF THE RIGHTS OF THE LANDOWNER

The present agreement does not grant any real right or usufruct right to "EMAPAL EP" to the area under conservation or restoration.

11. SPECIAL OBLIGATIONS

When the "Landowner" transfers partially or totally the title of the land where the conservation and restoration areas are located, the "Landowner" will notify "EMAPAL EP" at least 30 days in advance, and commit to include a clause in the sale deed that guarantees the continuation of the commitments undertaken in the present agreement. In the case of transferring the property to heirs, the "Landowner" will need to undertake the corresponding legal procedures for the continuation of the agreement on the part of the heirs.

The possibility of increasing the conservation and restoration areas remains open provided both parties are willing to reach an agreement, in which case the modifying annexes to the present agreement will be signed based on a technical proposal from "EMAPAL EP."

12. DISSOLUTION

This agreement will be automatically dissolved when the instances referred to in clause eight have been exhausted, and it is verified that one of the parties has not complied with the commitments established in clause four and once the corresponding liquidations have been executed.

13. ACCEPTANCE AND VALIDITY OF THE DOCUMENT

The parties declare their conformity with each and every one of the clauses and stipulations of the present agreement, acknowledging the facts permitted by the law, and committing to its strict and faithful compliance. The parties and the Major of Azogues city, as Honorary Witness,

hereby attest the above agreement and sign four copies of equal value and content, in the city of Azogues on the 23th of July 2013. Architect

Eugenio Morocho Quinteros (Architect)
MAJOR OF THE CITY OF AZOGUES

Marcelo Vázquez (Architect)
EMAPAL EP GENERAL MANAGER

Dr. Tania Parra Solórzano
EMAPAL EP LEGAL ADVISOR

MR._____

LANDOWNER

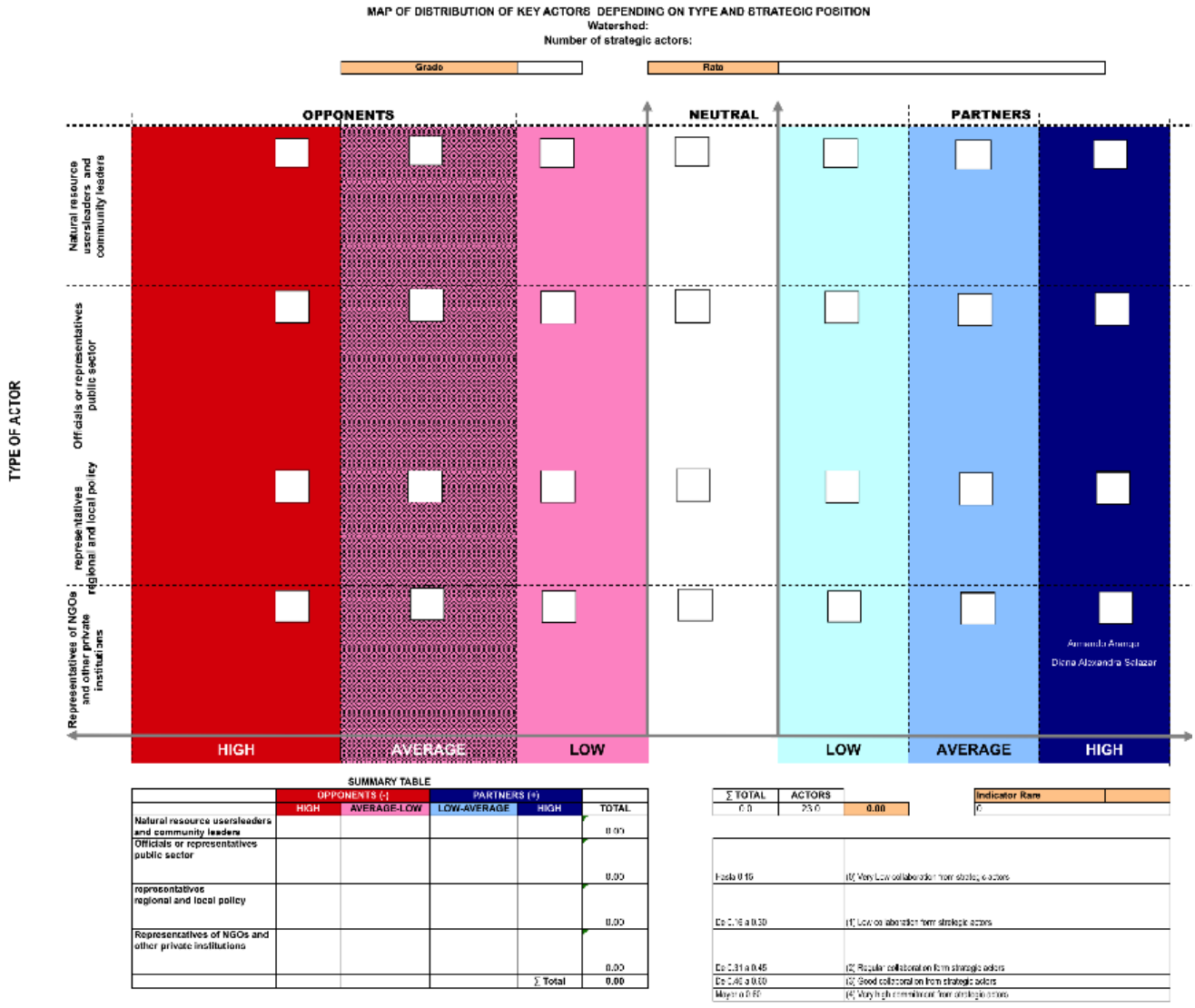
MRS. _____

LANDOWNER

Appendix 2. Financial Mechanisms in Pride for ARA

Pride Campaign Country Implementing Institution	Financial Mechanism
El Chorro Pride Campaign Ecuador Río Jubones Consortium	Fund: "Fondo Río Jubones". US$10,000 in 2014 from the municipality to match the US$10,000 Pride for ARA Campaign resources. An ARA Investment Plan was also approved by the municipality. The Río Jubones Consortium (working with 42 local governments) will prepare an ordinance to legalize the financial contributions from domestic water users.
Tabacay Pride Campaign Ecuador EMAPAL	Fund: "Fondo para la Conservación del Rio Paute (FONAPA)". FONAPA, NCI (an NGO) and EMAPAL (municipal company) have prepared an ordinance defining the water users' contribution.
San Vicente de Chucurí Pride Campaign Colombia Fundación Natura	Financial mechanism is part of the water quantity and quality protection program established through an inter-institutional agreement between San Vicente's Municipality, the water municipal company (APC Manantiales de Chucurí) and Fundación Natura, signed initially for three years and renewed. It defines the contribution of each institution for the watershed conservation and continuation of Pride activities.
Río Siecha Pride Campaign Colombia CORPOGUAVIO	Local water fund established through the "Incentives program for conservation of the watersheds," approved by Municipal Council.v
Río Cali Pride Campaign Colombia EMCALI	Public and private financial resources. Leveraged through an inter-institutional agreement signed between the water utility company (EMCALI), Patrimonio Natural, National Parks, CVC and the Cali municipality.
Rumiyacu-Mishquiyacu Pride Campaign Peru EPS Moyobamba	EPS Moyobamba (municipal water company) has been charging US$0.36/user/month for reforestation. EPS Moyobamba and the local Management Committee have decided to invest the US$0.36 in the ARA Contracts.
Cerro Grande Pride ARA Campaign Mexico CONANP	Fund: "Fideicomiso Agua para Colima" CONANP is working with CIAPACOV (water company) to leverage the contributions. CONANP will present a proposal for an ARA contract to be signed with the local ejido defining where and how the resources will be used.
Anillo de Cenotes de Yucatán Pride Campaign Mexico Niños y Crías, A.C.	Fund: "FANAY" a private/public fund. These resources will probably be leveraged with funds from donations collected by local business through the 'rounding off' of spare change.

Appendix 3. Stakeholder Map



SUMMARY TABLE

	OPPONENTS (-)		PARTNERS (+)		
	HIGH	AVERAGE-LOW	LOW-AVERAGE	HIGH	TOTAL
Natural resource usersleaders and community leaders					0.00
Officials or representatives public sector					0.00
representatives regional and local policy					0.00
Representatives of NGOs and other private institutions					0.00
				Σ Total	0.00

Σ TOTAL	ACTORS	
0.0	25.0	0.00

Indicator Rare	
0	

Hasta 0.15	(0) Very Low collaboration from strategic actors
De 0.16 a 0.30	(1) Low collaboration from strategic actors
De 0.31 a 0.45	(2) Regular collaboration from strategic actors
De 0.46 a 0.60	(3) Good collaboration from strategic actors
Mayor a 0.60	(4) Very high commitment from strategic actors

rare.org

Rare United States (HQ)
1310 N. Courthouse Road, Ste. 110
Arlington, Virginia 22201 USA
T +1 703 522 5070

Rare Latin America
Bogotá 2077, Col. Providencia
Guadalajara, Jalisco
CP. 44630 México
T +52 (33) 3817 0120

Rare China
7-1-114 Jianwai Diplomatic Compound
1 Xiushui St., Chaoyang District
Beijing 100600, China
T +86 10 8532 4860

Rare Indonesia
Jalan Papandayan No.11A
Taman Kencana – Bogor – 16151
T +62 (0) 251 8329449

Rare Philippines
Penthouse, Oftana Building
Don Mariano Cui cor. Jasmin Streets
Capitol Site, Cebu City
6000 Philippines
Tel: +63-32-412-2813

Rare Micronesia (Pohnpei)
P.O. Box K3173
Kolonia, Pohnpei FM 96941
Tel: +691-320-1683

Rare Palau
c/o Palau International Coral Reef Center
P.O. Box 7086
1 M-Dock Road
Koror, PW 96940 Palau
Tel: +680-488-6956