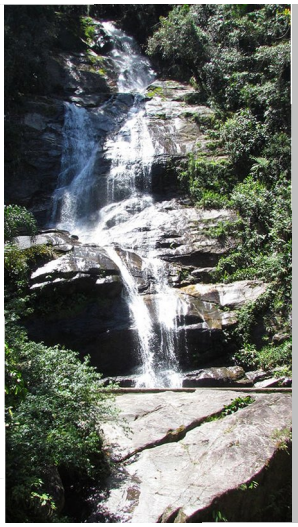

ENVIRONMENTAL FUNDS TO SUPPORT PROTECTED AREAS: LESSONS FROM BRAZILIAN EXPERIENCES

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ABSTRACT

Despite the recent initiatives to create private environmental funds to support finance for the Brazilian Protected Areas System, this subject is still poorly studied. This article aims to systematically analyse key aspects of the establishment and operation of nine private funds for protected areas in Brazil: their financing priorities; legal, financial and governance structures; and accountability procedures. The analysis was based on data collected from academic articles, documents, annual reports and structured email questionnaires with representatives of protected area funds. In addition, we assess the level of compliance with environmental funds practice standards regarding asset management, governance structure and accountability procedures. Altogether, the funds mobilised R$583 million (Brazilian currency) or US$138.8 million in the 2003–2015 period to support 197 PAs in the Amazon and the Atlantic Forest, over an area of 807,000 km². There is a diversity of institutional structures and innovative arrangements to raise funds from the national business sector, international donors, and to increase public investments in protected areas. The governance structure and accountability processes were found to be major deficiencies in the environmental funds' operations. From the systematic analysis of Brazilian protected area funds, the article presents some refinement of environmental funds' best practice guidelines.

Key words: protected areas, financing mechanisms, private environmental funds, Brazil

INTRODUCTION

Although the establishment of protected areas (PAs) is considered the main strategy adopted by countries to conserve natural ecosystems, the resources available for PA establishment and adequate management fall short of their needs (Emerton et al., 2006; Bovarnick et al., 2010). In Brazil, the reality is no different. The significant efforts to expand the Protected Areas National System (SNUC) (Jenkins & Joppa, 2009) were not accompanied by a sufficient increase in the budget allocated to these areas (WWF-Brazil, 2018; Machado et al., 2019), and a significant funding gap persists (MMA, 2009; Bovarnick et al., 2010).

This underfunding compromises the allocation of human resources, infrastructure and equipment, and the realisation of basic activities for effective biodiversity protection, since the provision of sufficient, stable, long-term funding is essential for PAs to function effectively and to achieve conservation outcomes (Bonham et al., 2014; WWF-Brazil & Funbio, 2017).

Given Brazil's large area and rich biodiversity, achieving the conservation goals established in global agreements such as the Convention on Biological Diversity and the Sustainable Development Goals requires a significant amount of resources. Since the main funding sources for PAs in Brazil (public budgets and international cooperation) have decreased over the years (Young & Bakker, 2016; WWF-Brazil, 2018; Machado et al., 2019), it is necessary to explore new sources and financing mechanisms, especially through strategic public–private partnerships (World Bank, 2013).

Environmental funds are considered an important financing mechanism to be part of the sustainability plan of PA national systems and to provide long-term financing (Emerton et al., 2006; Spergel & Taieb, 2008; Bonham et al., 2014; CFA, 2014). Private PA funds or Park funds often finance part of the operational and/or establishment costs of a PA individually or a country PA (sub)system, as well as sustainable development and conservation programmes in PA buffer zone communities (Spergel & Taieb, 2008; Spergel & Mikitin,

2013; CFA, 2014). In many countries, PA funds, besides raising and generating considerable long-term resources, have demonstrated the capacity to increase government investments in PAs (Oleas & Barragán, 2003; CFA, 2014).

In the past two decades, some Brazilian nongovernmental organisations (NGOs) have established, in partnership with public environmental agencies, private funds to finance PAs in the long term (Funbio, 2014; Conservation International-Brazil, 2015; FAS, 2016; SOSMA Foundation, 2017). Although this strategy is in evidence, the literature about Brazilian private PA fund experiences is scarce. With the exception of the Brazilian Biodiversity Fund (Funbio), no Brazilian PA fund has participated in international assessments (GEF, 1998; Spergel & Taieb, 2008; Mathias & Victurine, 2018).

The objective of this article is to systematically analyse key aspects of the institutional arrangements and operation of Brazilian private PA funds and discuss if they are in line with environmental fund best practice principles as recommended in the literature (GEF, 1998; Spergel & Mikitin, 2013). In addition, we assess the PA funds' level of compliance with Conservation Finance Alliance (CFA) guidelines and provide recommendations to improve their management.

METHODS

In order to understand the concept of environmental funds we reviewed the literature on their key institutional and operational elements. Based on the methodology used by Barcellos (2015) to analyse environmental funds for indigenous lands in Brazil, we examined nine private PA funds considering the following key aspects: financing priorities; legal structure; financial structure; governance structure; and accountability procedures.

The PA funds analysed were: 1) Transition Fund of the Amazon Region Protected Areas Program (ARPA TF), 2) Amazonas Sustainable Foundation (FAS), 3) Rio de Janeiro Atlantic Forest Fund (FMA/RJ), 4) Atol das Rocas Fund, 5) Guanabara Fund, 6) Costa do Corais Environmental Protection Area Fund, 7) Cagarras Islands Fund, 8) Juatinga-Cairuçu Fund and 9) Amapá Fund, located in three of the five geographical regions of Brazil.

We collected data from scientific articles, documents and fund reports, especially those available on the internet. Representatives of the PA funds provided additional information through a structured email questionnaire.

To assess the level of compliance of the PA funds with CFA guidelines (Spergel & Mikitin, 2013), we used a three-level scoring scale (strong, moderate and weak), proposed by Thuault et al. (2011) to evaluate the governance of forest funds in the Brazilian Amazon. A 'strong' score refers to full compliance with the guidelines. A 'moderate' score signifies partial compliance. A 'weak' score refers to insufficient compliance or non-compliance with the guidelines. We assessed seven guidelines related to asset management, governance structure and accountability processes.

KEY ELEMENTS OF ENVIRONMENTAL FUNDS

The first environmental funds emerged in the early 1990s and since then many new funds have been created in over 50 developing countries (GEF, 1998; 2019; Spergel & Taieb, 2008). According to the literature, there is no typical environmental fund. However, all of them have one thing in common: acting as intermediaries to finance medium and long-term public interest agendas (GEF, 1998; Spergel & Taieb, 2008).

Barcellos (2015, p. 55) conceptualises socio-environmental funds as "organizations created to act as intermediaries between donor and grantees, promoting the contribution of public or private resources to

Waterfall at Tijuca National Park © Patricia Ferreti

implement collective initiatives (projects and programmes), that take into account environmental, social and economic aspects".

Protected areas are among the various recipients that environmental funds can finance. Environmental funds created with the purpose of financing a particular PA or a PA (sub)system are defined as a Protected Area Fund or Park Fund. Besides operating financing mechanisms for conservation, private environmental funds have played a key role in defining national conservation strategies, and promoting public–private partnerships to develop efficient and innovative management strategies for conservation. The key attributes that distinguish one fund from another are related to legal, financial and governance features (GEF, 1998; Bayon et al., 1999; Oleas & Barragan, 2003; Spergel & Taieb, 2008), which are discussed below.

Financing priorities

The financing priorities delimit the object(s) of the financing, the target area for which the financing is available, and lines of action of each environmental fund. This is a very important element to plan funds' resource mobilisation, management and delivery (Barcellos, 2015). PA funds typically finance a portion of long-term management costs and/or the establishment costs of specific PAs, or of a country's entire PA system. Sometimes, PA management costs can also include financing for alternative livelihoods or sustainable development activities in PA buffer zone communities. In principle, salaries of PA staff should be a government responsibility, but in practice, some governments may lack sufficient resources to pay salaries, and PA funds may have to fill this gap (Spergel & Taieb, 2008).

Most PA funds are not sufficiently large to support all PAs in their country's PA system. Therefore, PA funds or the PA management agencies must prioritise which PAs should be supported. However, there can be a bias toward donors' priorities. In Brazil, for example, most external funding is directed to the Amazon region, whereas significantly fewer resources are dedicated to other threatened biomes, such as the Cerrado and Caatinga, with a much lower international appeal (Young & Castro, 2017).

Legal and financial structure

The definition of an environmental fund's legal status depends on the legal system of the country where it was created. In Common Law system countries, private environmental funds have been set up as trust funds. A trust is a legal arrangement in which assets (grants or other donor funds) are managed by another individual or legal entity, called a trustee, for the benefit of the donor or third party beneficiaries. In Civil Law countries, including Brazil, where there is no legal basis for the establishment of trust funds, environmental funds are established as non-profit civil organisations, usually as foundations (GEF, 1998; Spergel & Taieb, 2008).

In addition, in Civil Law countries, there are cases where environmental funds do not have a separate legal status, being subject to an incubation process. In this process, the environmental funds functions as a sector or department of a formally established civil organisation, which provides support to enable its operation. The support offered includes the provision of physical and administrative infrastructure, operational and financial management, and compliance with standards and contracts. Sometimes, this process aims to support the organisational arrangement for a period, with the hope that the environmental funds operates independently later on. Incubation processes are formalised through a contract between the incubator organisation and the different actors involved in this process, which include the fund's donors and beneficiaries (Barcellos, 2015). Moreover, environmental funds can be established by national/subnational law or decree (Norris, 2000).

The financial structure of environmental funds encompasses issues related to funding sources, financial operations and the asset management policies adopted by them. The sources of funding directly influence the operational prospects of environmental funds, reflecting on their governance aspects, management structure, operational costs, financial management strategies and on their possibilities of transferring funds to grantees (Geluda, 2010; Serrão, 2014).

Each funding source has characteristics and specificities that should be considered on a case-by-case basis. Therefore, it is recommended that environmental funds diversify their funding sources and prepare themselves institutionally to carry out the responsible management of the funds raised (Serrão, 2014). Regarding financial strategy, the literature usually identifies three typologies of funds (GEF, 1998; Serrão, 2014):
(a) Cash/sinking fund – the capital and the investment income are disbursed each year over a defined period until they sink to zero;
(b) Endowment fund – preserves the capital and only the investment income is used to finance grants and activities;
(c) Revolving fund – is replenished on a regular basis (usually through fees and taxes) to be used for specified purposes. A proportion of the revenues can be set aside to create an endowment.

Costa dos Corais Environmental Protection Area © Patricia Ferreti

Any environmental fund can combine these different strategies within its overall financial structure (Norris, 2000; Mathias & Victurine, 2018).

The asset management of an environmental fund is an important aspect to ensure its success in achieving its objectives and its long-term sustainability (Norris, 2000). For this reason, environmental funds often adopt asset management policies considering their investment objectives, donor requirements and the local economic context. The CFA recommends that a financial agency or an external and specialised investment adviser perform the asset management supervised by a governing board or a financial committee (Spergel & Mikitin, 2013).

Governance structure

The governance structure of an environmental fund comprises "the governing bodies set up for decision-making and implementation of actions to mobilize, manage and use resources to meet its objectives and implement its funding agenda (priorities)" (Barcellos, 2015, p. 65). There is no predetermined governing bodies' arrangement for environmental funds; each one must define the governance structures that best suit its objectives and the local context. However, based on environmental funds' experiences, the literature presents recommendations.

It is important that the governance structure of an environmental fund always be supported by a legal apparatus that includes the constituent documents (decree, social contract, bylaws), and an internal rules and operations manual (RedLAC, 2013). It is also recommended that the environmental fund's board have balanced governmental and private sector (companies and/or NGO) representation (Norris, 2000; Spergel & Mikitin, 2013), which would avoid the domination of a certain interest group in the board's decision-making process (RedLAC, 2013). In general, it is considered positive to have some governmental representation on the board because it helps to ensure sufficient coordination of the environmental fund's activities with government policies and institutions. In addition, it signals a political commitment to the conservation strategies implemented by the fund and can channel public resources such as taxes and fees to the environmental funds to manage them (RedLAC, 2013; Spergel & Mikitin, 2013).

Besides the governing board, some funds may also establish expert committees to support decision-making on specific topics such as finance and investment and technical and scientific issues. The establishment of committees is positive since they provide technical advice on topics of interest to the fund, improving its operation and results, and allows broader social participation in its management (RedLAC, 2013).

Accountability procedures

Since environmental funds manage third-party resources, they need to have credibility and ensure transparent operations. In addition, the public interest inherent to the financing agenda forces them to provide adequate means for society to monitor their activities. These obligations are called accountability procedures (Barcellos, 2015).

One of the actions considered fundamental to accountability is the publication of annual reports on their activities. The annual report acts as a tool that informs key partners (donor, government, public) about the fund's mission, its activities and results, as well as financial information such as amounts disbursed for projects/programmes and administrative costs. Furthermore, it can serve to attract new donors (Spergel & Mikitin, 2013). The public disclosure of funds' operational and governance documents such as governing board bylaws, meeting minutes and operational manuals is also considered part of the transparency and accountability procedures.

Based on the discussion of the key elements of environmental funds, the following information from Brazilian PA funds was collected:

(i) Financing agenda: target area (specific PA or a PA subsystem), biome where the supported PAs are located and area under protection;

(ii) Legal structure: legal status (whether the fund is incubated or not);

(iii) Financial structure: origin and volume of funds for initial capitalisation, type of financial operations adopted (sinking, endowment, revolving funds) and asset management (if done by own organisation or external consulting);

(iv) Governance structure: identification of the organisations that are part of the institutional arrangement (initiative leader, operational and financial manager), the existence and composition of the governing board and/or thematic committees;

(v) Accountability procedures: public disclosure of annual reports, public disclosure of the fund's operation and governance documents.

BRAZILIAN ENVIRONMENTAL FUNDS FOR PROTECTED AREAS

A brief overview of Brazilian initiatives

In Brazil, the first environmental funds, created in the late 1980s, were public. Private funds, such as an intermediary grant-making agent, emerged in the 1990s (Serrão, 2014).

In the last two decades, some NGOs adopted the creation of private funds as a long-term financing strategy to support PAs. Funbio is a pioneer in operating PA funds. The first one was the Fund for Protected Areas (FAP), established in 2003 as an endowment mechanism under the Amazon Region Protected Areas (ARPA) Program (Geluda, 2010). However, in 2012, the ARPA Program reviewed the financing strategy and created the Transition Fund (TF) with the FAP capital (the FAP was closed and the funds transferred to TF) and additional international and national donations. The TF is a sinking fund to finance the consolidation of the ARPA Program beneficiary PAs until 2039 when federal and Amazonian state PA agencies should fully assume the recurrent costs of PAs (ARPA Program, 2015). In this new model, a greater public effort is encouraged to leverage budgetary and non-budgetary sources to finance its PA systems.

As one strategy of its Atlantic Coast Program, the SOS Mata Atlântica Foundation (SOSMA) created endowment and sinking funds to support marine PAs. The first PA fund, created in 2006, was the Atol das Rocas Fund. An additional four funds were subsequently established: Guanabara Fund (2008); Costa dos Corais Environmental Protection Area Fund (2011); Cagarras Islands Fund (2012); and Juatinga-Cairuçu Fund (2013) (Martinez et al., 2015). Based on these experiences, SOSMA has been working with the Chico Mendes Institute for Biodiversity Conservation (ICMBio), the federal government PA agency, to establish new funds to support other Atlantic Forest PAs (SOSMA Foundation, 2017).

In 2007, within the scope of the Climate Change State Policy, the Amazonas Government determined that the management of resources to pay for environmental services in 16 state PAs – the Bolsa Verde Program, would be under the responsibility of a private non-profit organisation, which led to the creation of the Amazonas Sustainable Foundation (FAS). Initially, FAS operated an endowment mechanism made up of donations from State Government and Bradesco Bank of R$ 20 million (US$ 4.7 million[1]) each. In 2015, FAS changed the financial strategy to a sinking fund and currently raises funds through sponsorships, donations and projects supported by the Amazon Fund (Amazonas State Government, 2007; FAS, 2016).

In 2009, the Rio de Janeiro State Environment Secretariat (SEA), in partnership with Funbio, created the Rio de Janeiro Atlantic Forest Fund (FMA/RJ), a financial and operational mechanism to manage, among other funding sources, the environmental compensation

resources from enterprises (such as from the construction of a road, factory, etc.) licensed by the State Environmental Institute (INEA) (Ilha & Albuquerque, 2012; Petroni et al., 2015). Based on the FMA/RJ experience, Funbio has collaborated with five other states to replicate this model (Serrão, 2014).

Conservation International Brazil (CI-Brazil) also adopted a strategy of establishing endowment funds to provide financial sustainability for PAs and regional conservation strategies, called 'Funds for Life' (CI-Brazil, 2015). In July 2015, CI-Brazil announced the creation of the Amapá Fund, in partnership with the Amapá State Government and Funbio, with an initial Global Conservation Fund donation of R$5 million (US$ 1.19 million[1]), to support the conservation and sustainable use of natural resources, including management, technical training and establishment of local productive arrangements (CI-Brazil, 2016). CI-Brazil announced the launching of another fund to support PAs in South Bahia State and Abrolhos Archipelago (Fonseca, 2015).

Financing priorities

Although all funds analysed are park funds, their financing priorities are diverse. Four funds support PA subsystems: ARPA Program TF supports PAs in the Amazon Forest; FAS, FMA/RJ and the Amapá Fund support PAs inside the territory of Amazonas, Rio de Janeiro and the Amapá State, respectively. The other five funds, established by SOSMA, support specific PAs in the Atlantic Forest Coast. In addition, the FAS operates grant funds, since it supports sustainable development projects of local communities living inside and around the beneficiary PAs (FAS, 2016).

Most of the funds operate in partnership with the PA government agency at the federal level, ICMBio: the five funds operated by SOSMA, and the ARPA Program TF. The latter also formed a partnership with seven Amazonian States PA agencies. FAS operates exclusively in partnership with the state PA agency. The Amapá Fund and FMA/RJ support PAs managed by federal, state and local (municipal) governments (Table 1).

Table 1 Financing priorities of Brazilian PA funds

Fund	Year of creation	Object	PA beneficiaries (administrative level)	Biome	Area under protection (km^2)
Protected Area Fund/ Transition Fund of Amazon Region Protected Areas (ARPA) Program	2003/ 2012	PA subsystem	114 PA (69 federal and 45 state)	Amazon	593,195
Atol das Rocas Fund	2006	PA individually	Atol das Rocas Biological Reserve (federal)	Marine-Coastal	352
Amazon Sustainable Foundation	2007	PA subsystem	16 PA (state)	Amazon	109,750
Guanabara Fund	2008	PA individually	Guanabara Ecological Station and Guapimirim Environmental Protection Area (both federal)	Marine-Coastal	139
Rio de Janeiro Atlantic Forest Fund	2009	PA subsystem	48 PA (3 federal, 28 state and 17 local) - until December 2014	Atlantic Forest	4,702
Costa do Corais Environmental Protection Area Fund	2011	PA individually	Costa dos Corais Environmental Protection Area (federal)	Marine-Coastal	4,136
Cagarras Islands Fund	2012	PA individually	Cagarras Islands Natural Monument (federal)	Marine-Coastal	1
Juatinga-Cairuçu Fund	2013	PA individually	Juatinga Ecological Reserve (state) and Cairuçu Environmental Protection Area (federal)	Marine-Coastal	326
Amapá Fund	2015	PA subsystem	12 PA (7 federal, 5 state)	Amazon	94,340
Total			197 PA		806,941

Trail to Sono Beach at Juatinga Ecological Reserve © Patricia Ferreti

The PA funds' financing priorities are restricted to the Amazon and the Atlantic Forest with their associated marine and coastal ecosystems. This can be explained by the opportunities for national and international donations focused on tropical forests (Serrão & Geluda, 2015; Young & Castro, 2017) and to the mission of the operating organisations, such as the marine PA funds created by the SOSMA Foundation (Vialli, 2012).

In order to provide similar support to PAs in other biomes such as the Cerrado and Caatinga, PA government agencies need to establish a partnership mobilisation and fundraising strategy that highlights the importance of the PAs in these biomes.

The nine funds analysed here, together, support 197 PAs, totalling around 807,000 km². This represents nearly 10 per cent of Brazilian PAs and, more impressively, 9.4 per cent of the Brazilian territory.

Legal and financial structure

All of the PA funds analysed in this article are private and operate under a partnership between NGOs and government, supported by Law nº 13,019/2014, which establishes the legal regime of partnerships between the public administration and civil society organisations for the achievement of public interest objectives (Table 2).

In three cases, the operation of private PA funds is integrated with public policies and specific legislation supported their creation. FAS is integrated with the Amazonas State Climate Change Policy; FMA/RJ was created through the regulation of the SNUC and State Law; and the Transition Fund is the long-term financing mechanism of the ARPA Program, coordinated by the Ministry of the Environment (MMA).

Regarding their legal status, only FAS was formalised specifically to operate funds to promote forest conservation and sustainable use in PAs. The other PA funds were incorporated into already existing organisations. This is a situation that corresponds to the incubation process explained by Barcellos (2015), where the incubated fund has the advantage of using the expertise and infrastructure of the incubator organisation.

Funbio operates three funds (FMA/RJ, ARPA Program TF and the Amapá Fund) and the SOSMA Foundation operates five funds, acting as incubator organisations. Both are national NGOs with recognised experience in mobilising resources and managing conservation projects, which have the confidence of PA government agencies and donors.

Funbio, in particular, has expertise in designing and operating PA financial mechanisms, providing technical advice to PA government agencies and to other NGOs that want to develop long-term conservation financing mechanisms (Funbio, 2014).

Regarding funding sources, only FMA/RJ operates resources arising from a legal obligation, the environmental compensation established in the SNUC Law[2].

The other eight PA funds raise funds through voluntary donations from different sectors. Donors include international cooperation agencies, private companies,

national and international NGOs, banks, government and individuals (Table 2).

Besides donations, two funds created innovative fundraising arrangements. FAS raises funds from a percentage of the revenue from Bradesco Bank products, such as capitalisation bonds, pension plans and mutual funds (Geluda, 2010). The Juatinga-Cairuçu Fund obtains a percentage of sales of products of a cosmetics company (SOSMA Foundation, 2013).

Altogether, the nine PA funds mobilised at least R$ 583.2 million (US$ 138.8 million1) to finance PA creation and management, and sustainable development projects inside PAs and in their buffer zones. This amount is quite significant compared to other developing countries' experiences. The Mexican NPAF's endowment reached US$ 75 million and in Madagascar, the FAPBM's endowment reached US$ 50 million in a 10–15-year period (CFA, 2014).

The literature has many examples of funds with the potential to leverage government investments in PAs (Spergel & Taieb, 2008). In Brazil, the PA funds stimulated the commitment of the public budget to the PAs. FAS received a R$ 20 million (US$ 4.7 million1) transfer from the Amazonas State Government, and the Government of Amapá State committed to contributing R$ 1 million (US$ 0.3 million[1]) to the Amapá Fund (Amazonas State Government, 2007; CI-Brazil, 2016).

Table 2. The legal and financial structure of Brazilian PA funds

	Legal Structure		Financial Structure			
Fund	**Juridical personality**	**Legal base for creation**	**Resource mobilized***	**Origin of resources**	**Type of financial strategy**	**Asset management**
Protected Area Fund/ Transition Fund of Amazon Region Protected Areas (ARPA) Program	Incubated**	National Legislation (Decree nº 4,326/2012 and nº 8,505/2015) and Technical Cooperation Agreement	R$ 245 million (US$ 58.3)	FAP (World Bank/GE; KfW, WWF-Brazil and national companies' donations) FT (FAP capital + WWF and Anglo American company donations)	First endowment, changed to sinking	External consulting
Atol das Rocas Fund	Incubated**	Technical Cooperation Agreement	R$ 1.7 million (core capital) (US$ 404,761)	National individual donation	Endowment	Own organization
Amazon Sustainable Foundation	Non-profit civil organization	State Law nº 3,135/2007 and Social Statute	R$ 40 million (seed money) (US$ 9.5 million)	Amazon State Government and Bradesco Bank donations	First endowment, changed to sinking	External consulting
Guanabara Fund	Incubated**	Technical Cooperation Agreement	R$ 1.5 million (core capital) (US$ 357,142)	National individual donation	Endowment	Own organization
Rio de Janeiro Atlantic Forest Fund	Incubated**	State Law nº 6,572/2013 and Law nº 7,061/2015 and Agreement term (SEA/RJ 003/2009).	R$ 280 million (until December 2014) (US$ 66.66 million)	Environmental compensation (SNUC Law nº 9.985/2000, art. 36)	Endowment and sinking	External consulting
Costa do Corais Environmental Protection Area Fund	Incubated**	Technical Cooperation Agreement	R$ 10 million (US$ 2.3 million)	Toyota Foundation of Brazil donation	Endowment	Own organization
Cagarras Islands Fund	Incubated**	Technical Cooperation Agreement	No information	Bradesco Cards donation	Sinking	Own organization
Juatinga-Cairuçu Fund	Incubated**	Technical Cooperation Agreement	No information	Bradesco Cards donation and 20% of sales of Juatinga products from EST Cosmetics Company	Sinking	Own organization
Amapá Fund	Incubated**	Agreement Term	R$ 5 million (US$ 1.19 million)	Global Conservation Fund (GCF) donation	Endowment	External consulting
Total			R$ 563.2 million (US$ 138.8 million)			

* US dollar exchange rate on 24 Nov, 2019, US$ 1 = R$ 4.20
** A PA fund is incubated when it does not have its own legal and administrative structure, it is operationalised through an already existing organisation

Table 3. Evaluation Brazilian PAs funds level of compliance* with best practice guidelines for environmental funds

Fund	Level of compliance with environmental funds best practices						
	Financial Structure		Governance			Accountability procedures	
	Asset management by specialized agency	Asset management supervised by financial committee	Formalized board	Board has equal public-private composition	Formalized thematic committees	Consolidated annual report	Fund's documents available to public
Protected Area Fund/Transition Fund (ARPA)	3	3	3	2	3	2	3
Atol das Rocas Fund	1	3	2	1	1	1	1
Amazon Sustainable Foundation	3	3	3	3	3	3	3
Guanabara Fund	1	3	1	0	1	1	1
Rio de Janeiro Atlantic Forest Fund	3	3	3	2	1	1	3
Costa do Corais Environmental Protection Area Fund	1	3	2	1	1	1	1
Cagarras Islands Fund	1	3	1	0	1	1	1
Juatinga-Cairuçu Fund	1	3	1	0	1	1	1
Amapá Fund	3	3	3	3	1	1	1

* Level of compliance: 3 = Strong; 2 = Moderate, 1 = Weak, 0 = Not applicable.

In the ARPA Program TF case, governments must meet progressive co-financing targets to access the fund resources (ARPA Program, 2015).

Seven funds adopted the endowment strategy, where the main capital is preserved and only the proceeds are used to support PAs. This is considered an efficient strategy to support PAs as it promotes stable and long-term financing (CFA, 2014).

Since Brazil is not included in the priority list of developing countries to receive Overseas Development Aid, international donors are structuring exit strategies, involving the design of long-term financing mechanisms, which can explain the increasing number of PA endowment funds in the country. In addition, private foundations and international NGOs have made large donations for the operation, capacity building and creation of endowment funds, and the exchange rate favours the receipt of foreign currency funds (Serrão & Geluda, 2015).

The FMA/RJ adopts the revolving financial strategy. The environmental compensation component receives, on a regular basis, resources from projects licensed under the INEA, which are applied to PA projects approved by the Environmental Compensation Chamber. About R$ 20 million (US$ 4.7 million[1]) of these resources were channelled to an endowment fund, where the income investment covers the recurrent costs of Rio de Janeiro state strict protection PAs (Ilha & Albuquerque, 2012; Petroni et al., 2015).

In the ARPA TF and FAS cases, there was a realignment of the financial strategy from endowment to sinking. The predominant factor for this change was that the income from the investments of the fixed capital was insufficient to cover the PAs' financing demands (Funbio, 2014; Lima, 2015).

Serrão (2014) considers that the asset investment model adopted by environmental funds is conservative, which limits access to new sources of funds and their ability to meet environmental demands. The usual financial application strategies can generate incomes below the PAs' financial requirements (Mathias & Victurine, 2018). Thus, Brazilian PAs funds need to diversify their investment strategies and identify other funding sources for constant capitalisation, as well as coordinate efforts with other financing strategies, such as short-term projects (Spergel & Mikitin, 2013; CFA, 2014).

Regarding asset management, four funds hire external asset management agencies (ARPA Program TF, FAS, FMA/RJ and the Amapá Fund) that are supervised by the funds' governing bodies. The SOSMA Foundation carries out the asset management for its five funds, with the advice of a finance committee[3] (Table 3). Although

Handcraft produced at Tapajós-Arapiuns Extractivist Reserve © Mariana Machado

CFA recommends that asset management should be carried out by an external agency, if the amount of resources is not significant, as in the case of the SOSMA Foundation, hiring a specialised agency may increase administrative costs and reduce the budget available to invest in the PAs. A reasonable allocation of the available budget between a fund's management expenses and PA projects is also important (CFA, 2014). According to Spergel and Taieb (2008), it is expected that the administrative costs of the environmental funds range from 10 to 20 per cent of the total annual budget. Some donors establish a 'cost ceiling', commonly 15 per cent of total expenses.

Thus, we suggest that this best practice guideline could be more flexible if the fund's operational manager carries out the asset management, ensuring compliance with accounting standards and under a financial committee's supervision, as in the case of the SOSMA Foundation's PA funds.

Governance structure

Only three organisations are responsible for the operation of the PA funds. The SOSMA Foundation operates five funds, all of them conceived and established by the institution. Funbio is the operational and financial manager of three funds, whose establishment involved public agencies (Ministry of the Environment, Rio de Janeiro State Environment Secretariat and the Amapá State Government), as well as NGOs. The FAS was created to operationalise the Amazonas State's Climate Change Policy, initially managing grant resources from the State Government and Bradesco Bank and then diversifying its funding sources.

The PA government agencies participate in the funds' governance and operation in different ways. The government can be the leading organisation in the creation of funds (FMA/RJ, ARPA TF and FAS) and/or co-financier (FAS and the Amapá Fund). It is important

Table 4. Governance structure of Brazilian PA funds

Fund	Governance Structure			
	Organization that led the fund's creation	Operational Manager	Finance Manager (asset management)	Governance bodies
Protected Area Fund/Transition Fund (ARPA)	Ministry of Environment	Brazilian Biodiversity Fund	Specialized external asset consulting	Management Committee
Atol das Rocas Fund	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	Donors Consulting Board, Finance Committee
Amazon Sustainable Foundation	Amazon State Government	Amazon Sustainable Foundation	Bradesco Asset Management (BRAM) and Bank of Brazil	Administrative Board, Fiscal Board, Consulting Board
Guanabara Fund	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	No specific board, Finance Committee
Rio de Janeiro Atlantic Forest Fund	Rio de Janeiro State Environmental Secretary	Brazilian Biodiversity Fund	Bradesco Bank	Environmental Compensation Chamber
Costa do Corais Environmental Protection Area Fund	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation and Toyota Foundation of Brazil	SOS Mata Atlântica Foundation	No specific board, Finance Committee
Cagarras Islands Fund	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	No specific board, Finance Committee
Juatinga-Cairuçu Fund	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	SOS Mata Atlântica Foundation	No specific board, Finance Committee
Amapá Fund	Conservation International - Brazil	Brazilian Biodiversity Fund	Specialized external asset consulting	Deliberative governing council

to highlight that in all the funds analysed the public agencies have the autonomy to manage the PA as they are responsible for the elaboration and execution of PA work plans. Maintaining an autonomous operation but being linked to government is found to be a key factor in funds' success (Bladon et al., 2014).

Regarding governance structure, only four funds have formalised boards, and among them, two have parity between government and non-government representatives (Table 3 and Table 4). The ARPA Transition Fund has an eight-member Committee: six nominated by donors and two Brazilian Federal Government officials representing the MMA and the Ministry of Planning, Budget and Management. The TF Committee is part of the broader governance structure of the ARPA Program, which includes the Program Committee (deliberative board) and the Technical Forum and the Scientific Advisory (advisory bodies) (ARPA Program, 2015).

FAS has a Deliberative Administrative Council formed by three representatives from the government and three non-government representatives from civil society, business and academic sectors. There is also a Fiscal Council and an Advisory Council (FAS, 2016). Five civil society and five Amapá government representatives comprise the Deliberative Council of the Amapá Fund (CI-Brazil, 2016).

The FMA/RJ governing body is the Environmental Compensation Chamber, made up of six representatives from civil society, which include an NGO, academia, Trade Association, Industries Federation, Brazilian Hotel Industry Association, Brazilian Service for Micro and Small Enterprises Support, and eight government representatives (Rio de Janeiro State Secretary, 2016).

Three funds operated by the SOSMA Foundation do not have specific governing bodies (Cagarras Island, Guanabara and Juantinga-Cairuçu). The Atol das Rocas

Fund has a committee (Atol das Rocas Friends' Council) formed by the seven donors and one representative from ICMBio and SOSMA each (Martinez et al., 2015). The APA Costa dos Corais Fund is co-managed with the Toyota Foundation of Brazil, the donor[3].

Following a worldwide tendency, Brazilian PA government agencies have suffered severe cuts in their budgets, placing them in a position of dependence on private resources (Fortwangler, 2007). The absence of a formal governance structure with the participation of public authorities can compromise the PA agencies' ability to negotiate the resource use priorities with donors in accordance with protected area needs. Thus, we reinforce the importance of a governance structure where public and private actors can maintain a dialogue and work for the achievement of the protected areas' collective benefits.

Accountability procedures

Regarding accountability procedures, most of the funds analysed need to make improvements (Table 3 and Table 5). Only FAS publishes a consolidated annual report about their activities, financial balance and list of beneficiaries (FAS, 2015; 2016). Although the ARPA Program TF and FMA/RJ make documents available on their web pages such as project reports, asset reports, meeting minutes and operational manuals, they do not make available an annual consolidated report (ARPA Program, 2015; 2016; Farias et al., 2015). As Thuault et al. (2011) emphasise, transparency is not only about making information available but also about making it available in a layout and language accessible to the public.

Funbio (2019) publishes the Amapá Fund asset balance on its website, but other documents are not available. The SOSMA Foundation (2016) publishes its annual activities and balance reports. However, these reports do not provide information about PA funds individually; therefore, they do not permit more detailed monitoring of these financing mechanisms.

Analysing the PA funds' publicised documents, we found that the accountability procedures prioritise financial matters and that it is the funds' incubator organisations and government agencies that are accountable to the

Table 5. Accountability procedures of Brazilian PA funds

Fund	Accountability Procedures	
	Publication of annual reports	Publication of other documents and reports
Protected Area Fund/Transition Fund (ARPA)	Yes	Minutes of board meetings, agreement contracts, operational manuals and assets balance reports.
Atol das Rocas Fund	No, but it is presented to Donors Consulting Board	No
Amazon Sustainable Foundation	Yes	Assets balance and audit reports, social contract, balance of beneficiaries of Bolsa Floresta Program
Guanabara Fund	No, but it is presented to Donors Consulting Board	No
Rio de Janeiro Atlantic Forest Fund	Yes	Minutes of Environmental Compensation Chamber meetings, agreement contracts, operational manual and assets balance reports.
Costa do Corais Environmental Protection Area Fund	No	No
Cagarras Islands Fund	No	No
Juatinga-Cairuçu Fund	No	No
Amapá Fund	No. (By the time of this study, Amapá Fund was initiating its operation, so no report was published yet)	No. (By the time of this study, Amapá fund was reviewing the operational manual).

donors, often without disclosing all the information. However, we emphasise the importance of improving the 'public interest' and external accountability, which from the authors' point of view includes greater involvement of government agencies in PA funds' decision-making and operation processes, as well as reporting the outputs, such as improvements in PAs' management effectiveness, in language accessible to the general public.

CONCLUSIONS

This paper has shown that Brazilian private PA funds have different institutional arrangements. The funds contribute to protecting almost 10 per cent of Brazilian territory, which is impressive.

Based on the analysis, it is possible to affirm that the Brazilian NGOs operating PA funds have been able to take advantage of the favourable scenario for the creation of these financial mechanisms, mobilising donations from different national and international institutions. In addition, innovative arrangements have been put in place to raise funds, such as FAS and the Juatinga-Cairuçu Fund that have established a partnership with the business sector, and the Rio de Janeiro Atlantic Forest Fund with the use of environmental compensation resources, which are a legal obligation.

Nevertheless, there are still challenges to overcome, especially regarding governance and transparency. We identify some key steps to ensuring the success of environmental funds: formalising a balanced public–private governance structure and publishing consolidated annual reports in accessible language. In doing so, we believe that Brazilian PA funds, besides being reliable for donors, could also be accountable to society and help to ensure the achievement of protected areas' public interest objectives.

In addition, we suggest the following improvements to refine environmental funds best practice guidelines: (i) the prioritisation of which PAs should be supported by environmental funds must involve government PA agencies; (ii) when the fund's capital is small it may be acceptable for the incubator organisation to carry out the asset management ensuring compliance with accounting standards and under a financial committee's supervision in order to reduce operational costs; (iii) it is important to strengthen the public interest character of the funds with a governance structure that includes the relevant government agency and the publication of consolidated annual reports in language accessible to the general public.

ENDNOTES

[1] Dollar price on 24 November 2019 (US$ 1.00 = R$ 4.20).

[2] Article 36 of Federal Law nº 9,895/2000 establishes that in ventures with significant environmental impact, the investor is obliged to allocate up to 0.5 per cent of the value of the enterprise to support the implementation and management of strict protection PAs.

[3] Information provided by Márcia Hirota, SOS Mata Atlântica Foundation Executive Director, by email interview on 28 November 2016.

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RESUMEN

A pesar de las iniciativas recientes para crear fondos ambientales privados para apoyar el financiamiento del Sistema Brasileño de Áreas Protegidas, este sigue siendo un tema poco estudiado. El presente artículo tiene por objeto analizar sistemáticamente aspectos clave del establecimiento y operación de nueve fondos privados para áreas protegidas en Brasil: sus prioridades financieras; estructuras legales, financieras y de gobernanza; y procedimientos de rendición de cuentas. El análisis se basó en datos recopilados de artículos académicos, documentos, informes anuales y cuestionarios estructurados enviados por correo electrónico a los representantes de los fondos para áreas protegidas. Además, evaluamos el grado de cumplimiento de las normas con respecto a las prácticas relacionadas con los fondos ambientales en términos de la gestión de activos, la estructura de gobernanza y los procedimientos de rendición de cuentas. En total, los fondos movilizaron R$583 millones (moneda brasileña) o USD138,8 millones en el período 2003–2015 en apoyo de 197 áreas protegidas en el Amazonas y la Mata Atlántica, en un área de 807.000 km². Se cuenta con una diversidad de estructuras institucionales y modalidades innovadoras para recaudar fondos tanto del sector empresarial nacional como de donantes internacionales y aumentar las inversiones públicas en áreas protegidas. Se encontraron grandes deficiencias en la estructura de gobernanza y los procesos de rendición de cuentas en lo referente a las operaciones de los fondos ambientales. A partir del análisis sistemático de los fondos brasileños para áreas protegidas, el artículo presenta algunos ajustes en las directrices de buenas prácticas relacionadas con los fondos ambientales.

RÉSUMÉ

Malgré les récentes initiatives visant à créer des fonds environnementaux privés pour soutenir le financement du système brésilien des aires protégées, le sujet est encore insuffisamment étudié. Cet article vise à apporter une analyse systématique des aspects clés de la mise en place et du fonctionnement de neuf fonds privés pour les aires protégées au Brésil, leurs priorités de financement, structures juridiques, financières et de gouvernance, et les procédures de responsabilisation. L'analyse est basée sur des données collectées à partir d'articles universitaires, de documents, de rapports annuels et de questionnaires structurés par courrier électronique avec des représentants des fonds des aires protégées. De plus, nous avons évalué leur niveau de conformité par rapport aux normes de pratique appliquées par les fonds environnementaux en matière de gestion d'actifs, de structure de gouvernance et des procédures de responsabilisation. Au total, les fonds ont mobilisé 583 millions de réaux (la devise brésilienne) ou 138,8 millions de dollars US sur la période 2003-2015 pour soutenir 197 aires protégées en Amazonie et dans la forêt atlantique, sur une superficie de 807 000 km². Il existe de nombreuses structures institutionnelles et des arrangements innovants pour lever des fonds auprès du secteur commercial national et des donateurs internationaux, et pour accroître les investissements publics dans les aires protégées. La structure de gouvernance et les processus de responsabilisation des opérations des fonds environnementaux se sont révélés être des lacunes majeures. A partir de l'analyse systématique des fonds brésiliens pour les aires protégées, cet article présente certaines précisions quant aux directives des fonds environnementaux concernant les normes de pratique.