



Opportunity for change or reinforcing inequality? Power, governance and equity implications of government payments for conservation in Brazil

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ABSTRACT

Economic instruments for conservation are invoked as a strategy to achieve the dual goals of maintaining healthy ecosystems and improving human well-being. The outcomes of such instruments are highly variable and there has been limited analysis of their social outcomes. Economic instruments for conservation can create opportunity and political leverage for minority groups or reinforce pre-existing power relationships and reproduce socio-economic inequalities. This research examines the equity implications of a government scheme from Brazil known as an ecological fiscal transfer, looking at how institutional arrangements and local power dynamics influence the application of revenue to achieve social outcomes. A case study from the Atlantic forest explores whether the application of revenue reflects the interests of a broad community base and avoids elite capture, or if decision-making processes are engineered by local power actors to further specific interests. Results demonstrate how poor local institutional capacity limits the effective governance of the revenue, leading to limited positive social outcomes. Furthermore, incentives offered by the mechanism stimulate conservation activity which implies high costs for the rural poor. The application of a framework of good governance guides the development of recommendations for improving the social equity of ecological fiscal transfer policies. These findings reinforce the importance of the design of EFTs applied in regions of poverty, if they are to promote socially equitable conservation.

1. Introduction

Recent scholarship has acknowledged the important role that power relations and institutions can have in shaping economic instruments for conservation to create social and environmental benefits (Van Hecken et al., 2015). Justice and social equity outcomes are increasingly recognised as crucial to the effectiveness of such initiatives (Pascual et al., 2014; Lehmann et al., 2018; Martin et al., 2014). Although advancing in recent years, there is limited analysis of the determinants of social outcomes of environmental payment schemes (Börner et al., 2017). A power sensitive conceptualisation may enable insights into how initiatives are implemented and experienced in the field (Van Hecken et al., 2015).

Environmental payment programs have the potential to create opportunities and political leverage for minority groups, countering traditional power hierarchies (Birner and Wittmer, 2003; Van Hecken et al., 2015). Conversely, access to the benefits of payments can be

highly asymmetrical and subject to elite capture, reinforcing pre-existing power relationships and reproducing socio-economic inequalities (Ma et al., 2017; Cavanagh and Benjaminsen, 2015). Scholars have called for greater attention on how governance structures and power dynamics influence the outcomes of environmental payments for conservation and human well-being (Holmes and Cavanagh, 2016; Van Hecken et al., 2015).

Researchers examining how economic instruments for conservation may reconcile the requirements of human society and natural systems have been criticised as taking an ‘armchair’ approach (Van Hecken et al., 2018). Theoretical interpretations of payment schemes, made without input from people experiencing the schemes first hand, has led to recognition of the importance of a situated approach. A situated approach may allow a sufficient level of nuance in the interpretation of human-nature relations under different conditions to illustrate the potentials and barriers of different payment programmes (Van Hecken et al., 2018).

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This research provides a fine-grain examination of governance and power structures associated with the longest-running economic instrument for conservation in Brazil, an ecological fiscal transfer (EFT). EFTs are a revenue sharing mechanism that target decentralised public authorities through the redistribution of public revenue from central to local government to compensate or incentivize the provision of ecological goods and services whose benefits cross local boundaries (Ring, 2008). EFTs provide an example of tax revenue being redistributed to benefit resource-dependent communities, suggested by Fletcher et al. (2016) as an alternative to market-based payment for ecosystem services (PES) schemes. EFTs address large scale equity problems associated with the costs of conservation that accumulate at the local level and may support the public function of nature conservation (Balmford and Whitten, 2003; Droste et al., 2018).

As part of a policy mix for conservation, EFTs can be considered to have numerous advantages and avoid some common downfalls associated with other economic instruments like high transaction costs, funding instability, the need for stable land rights, equity and ‘green grabbing’ (Fairhead et al., 2012; Pascual et al., 2010). EFTs are established within a pre-existing legislative framework and incur little cost. They eliminate the problem of finding new funding for conservation and are stable and permanent (Ring, 2008). As payments are made between government institutions they may avoid reinforcing existing inequities that can occur when payments are made to landholders, who may represent the local elite (Corbera et al., 2007; Pagiola et al., 2005). EFTs address large scale equity problems associated with the local costs of conservation (Balmford and Whitten, 2003). Because they are not linked to markets or private enterprise and apply to conservation activity already undertaken, EFTs do not contribute to the appropriation of land for environmental purposes (Fairhead et al., 2012). EFTs may be developed with a focus on applying revenue at the community level to promote sustainable livelihoods within the context of land-use restrictions (Verde Selva et al., 2019).

The EFT examined here, the Ecological ICMS (ICMS-E), has been in operation in Brazil for almost three decades. It has been described as the “most mature EFT mechanism to date, including continuous improvement... over time”, and is seen as basis for adaptation to other parts of the world (Droste et al., 2018, p.377). However, there are significant knowledge gaps in relation to this policy mechanism, including whether the local application of ICMS-E revenue contributes to improving socio-economic well-being of the broader community and avoids elite capture, or if decision-making processes are engineered by local power actors to further specific interests. This research uses a municipal case study to examine the ICMS-E with the following objectives: (1) Examine the social outcomes derived from ICMS-E revenue application and determine how this is influenced by local governance and institutional arrangements; (2) Examine how local power dynamics impact on the application of the revenue from the ICMS-E; (3) Determine how consideration of these elements can improve the design and evolution of EFTs in other contexts.

2. Conceptual background

2.1. Ecological fiscal transfers

The ICMS-E (described in section 3) was developed in Brazil in 1991 (Ring, 2008). In 2007 Portugal was the second country in the world to establish an EFT (Santos et al., 2012), followed by India in 2014 (Busch and Mukherjee, 2017). There are some pilot projects being developed regarding their application in France (Borie et al., 2014), Germany (Schröter-Schlaack et al., 2014), Indonesia (Mumbunan et al., 2012) and elsewhere. Research also points to their potential use Europe-wide (Droste et al., 2018) and in a global arrangement (Farley and Costanza, 2010). Despite this interest in the instrument, there is insufficient evidence on the local application of EFTs to understand how they can produce beneficial or adverse social outcomes.

EFTs can contribute to the decentralisation of responsibility for natural resources management by providing financial incentives for municipal government to implement local protected area or undertake other conservation measures, with these decisions theoretically determined according to local preferences. It has been argued that this may contribute to the incorporation of local knowledge and viewpoints into conservation (Droste et al., 2015). However, this perspective may not entirely account for the power dynamics that shape decision making at the local level, particularly in poor regions of the developing world where the distribution of power among local actors may be highly unequal, and clientelism prevalent (Azeredo and Lobo, 2005). Local government institutions determine the application of EFT revenue, and therefore to whom the benefits will accrue. From this perspective, it is clear that governance, the way by which structures and processes share power within society, and existing power dynamics, such as concentration and inequality, are intertwined and should be examined together.

2.2. The role of institutional capacity in EFTs

EFTs are administered and operated by government actors, so the institutional setting and structures under which they operate are critical to outcomes. Capacity is an important aspect for consideration (Vatn, 2010). The institutional capacity of the public sector plays a critical role in the application of policies to achieve integrated human and environmental outcomes. Institutional capacity is the result of the complex interplay between competence, resources and structures, including: the human resources available; level of expertise and availability of training and technical assistance; the types of responsibilities and availability of inter- and intra-institutional cooperation and coordination to facilitate these processes; and the style of governance in terms of transparency, efficiency and accountability (Bhagavan and Virgin, 2004). Institutional capacity depends not only on the capabilities of people but also on the overall size of the task, the resources which are needed to perform the task and the framework within which capacities are used (Franks 1999). Institutional capacity is affected by the level of decentralisation present in a system of governance (Baiocchi, 2006).

2.3. EFTs and trends of decentralisation

EFTs are considered part of the movement towards decentralisation that is occurring in many countries. Decentralisation in governance refers to the dispersal of authority and responsibility away from central government. Decentralisation allows for local preference and knowledge to be incorporated into decision making processes, theoretically creating more effective and efficient policy (Clement, 2010). However, if decentralisation is not accompanied by sufficient resources and capacity building it can lead to high inefficiency and low effectiveness in achieving the local policy mandate (Bardhan and Mookherjee, 2006).

In recognition of the need to promote conservation at all governance levels, EFTs are framed as an instrument with potential to incentivise and provide funding for municipal conservation activity (Schröter-Schlaack et al., 2014; Borie et al., 2014), with projects reflecting local preference (Sauquet et al., 2014). However, local preference may not reflect the whole community. The process of decentralisation can lead to the capture of democratic processes by local elites (Bardhan and Mookherjee, 2006). This effect can be directly related to the level of inequality present locally; high inequality increases the chances of benefit capture of policies by powerful local actors (Bardhan and Mookherjee, 2002).

2.4. The importance of acknowledging power in EFTs

Power relations are considered central to how environmental payment schemes function (Van Hecken et al., 2018), however there is

limited research on how power dimensions shape payment mechanisms in practise (Kolinjivadi et al., 2017), and no published research, to the authors' knowledge, examining EFTs. Local dimensions of power are the result of historical structures, practices and legacies (Kolinjivadi et al., 2017) and the resulting social-political-institutional contexts in which environment payments occur are largely responsible for their outcomes (Van Hecken et al., 2018). Examining economic instruments for conservation with a focus on power dynamics can contribute to understanding how policy interventions are adapted locally to produce outcomes.

Although a contested topic, power can be understood as the application of action and knowledge through social interaction and distribution of resources and influence, to resolve problems and further interests (Few, 2002). Power imbalances between actors affect how decisions are negotiated and trade-offs established, with unequal distribution of power usually meaning that existing power relationships are reinforced (Adger et al., 2006).

Power structures impact the way environmental payments are received and applied locally (Cetas and Yasué, 2017). Payment schemes can open up opportunities for participation and negotiation over rights (McAfee and Shapiro, 2010; Shapiro-Garza, 2013). Social interactions in natural resource management can provide a platform for participation and increase the politicization of communities, countering traditional power hierarchies (Birner and Wittmer, 2003). However, payment schemes can also reinforce existing social differences among local actors (Holmes and Cavanagh, 2016).

Individuals or collective actors can only practise power within the structural limits that enable or constrain them (Hayward and Lukes, 2008). The agency (i.e., the capacity for action), of diverse actors influence the formation and outcomes of environmental payment initiatives (Van Hecken et al., 2018). In the context of EFTs, the agency that local government has in executing social or environmental strategies in accordance with social preference is limited or enhanced by existing structural aspects, such as technical capacity and access to resources. Powerful non-government actors, individuals and organisations, may not experience the same structural limitations to agency, and have access to resources and knowledge that are not widely shared, enabling them to exert influence on public decision-making processes (Pettit, 2013).

2.5. EFTs and environmental governance

Environmental governance has evolved over decades to embrace numerous approaches. A protectionist approach defined protected areas as a mechanism to preserve a pristine 'wilderness', where human access and inhabitation were prohibited or severely restricted (Gomez-Pompa and Kaus, 1992). This approach was based on the notion that biodiversity is best maintained in isolation from human interaction (Blaikie and Jeanrenaud, 1997).

The recognition of humans' role in natural systems and the need to address well-being informed the development of conservation

approaches such as integrated conservation and development projects (ICDPs) and community-based conservation (Kremen et al., 1994; Brown, 2002). This people-oriented paradigm shaped the conservation agenda throughout the 1990s and involved prioritising the participation of local communities in environmental conservation, with the objective of attaining simultaneous beneficial outcomes for human development and the environment (Gomez-Pompa and Kaus, 1992; Brown, 2002).

More recently economic instruments for environmental governance have received great attention, with a neoliberal approach to conservation expected to be efficient and direct in contemplating the ecological and social aspects of environmental governance (Frost and Bond, 2008). Yet economic approaches are also strongly criticised on many grounds (Büscher et al., 2012; McAfee, 2012; Fletcher et al., 2016; Fletcher and Büscher, 2017).

These conservation 'panaceas' are recognised as inadequate to manage the intricacies of socio-ecological systems, maintaining decent livelihoods within healthy ecosystems (Ostrom et al., 2007). Within each paradigm are a myriad of strategies, each with its own positives and critiques, however it is suggested that an integration of different strategies in response to local social, political, economic and environmental contexts may aid the success of environmental governance (Berkes, 2007; Ostrom and Cox, 2010; Ostrom et al., 2007; Santos et al., 2014).

EFTs represent an instrument for environmental governance that can complement protected area strategy. Neglecting to consider the social dimension of a socio-ecological system in the implementation and management of protected areas can create environmental conflict and disadvantageous social and environmental outcomes. Evidence suggests that better environmental outcomes arise from the promotion of the economic and social well-being of those living in and around protected areas (Oldekop et al., 2016). EFTs can provide the funding required to implement programs that attend to the economic and social needs of the local resident population.

2.6. Characteristics of good governance

Governance is related to the processes and institutions that determine how power is shared (Young, 1992). 'Good' governance is considered to have attributes including transparency, accountability and processes of participation and deliberation (Lebel et al., 2006), which can be incorporated into EFT design (Table 1). Governance is not just practised by government, but may also emerge through the interactions of other actors, being either formally institutionalised, or expressed indirectly by influencing agendas, decision-making and resource access (Lebel et al., 2006). If the design of EFTs incorporates aspects of good governance it is possible that unequal power dynamics may be diluted, influencing how the initiative will be appropriated to produce socially just outcomes (Fig. 1).

outlining how the concentration of power can be filtered through the attributes of good governance to promote socially just outcomes

Table 1
The promotion of elements of good governance through EFT design.

Attributes of good governance		Relevance for EFT design
Participatory	Inclusive stakeholder participation that broadens range of issues and interests considered	Policy framework supports participation in application of revenue to address concerns of multiple stakeholder groups Participation must be meaningful, i.e. conducted through deliberative processes to avoid coercion and co-option Spending decisions must be easily observable and justifiable
Deliberative	Open communication with debate and negotiation	
Accountable	Vertically and horizontally - authorities are obliged to explain decisions, with possible consequences	
Transparent	Processes and interactions are easily observable	Application of funds addresses interest areas of broad population base, or targets most needy. Not captured by elite few.
Socially just	Fair distribution of costs and benefits	

Source: Author's elaboration based on Lebel et al.'s (2006) attributes of governance.

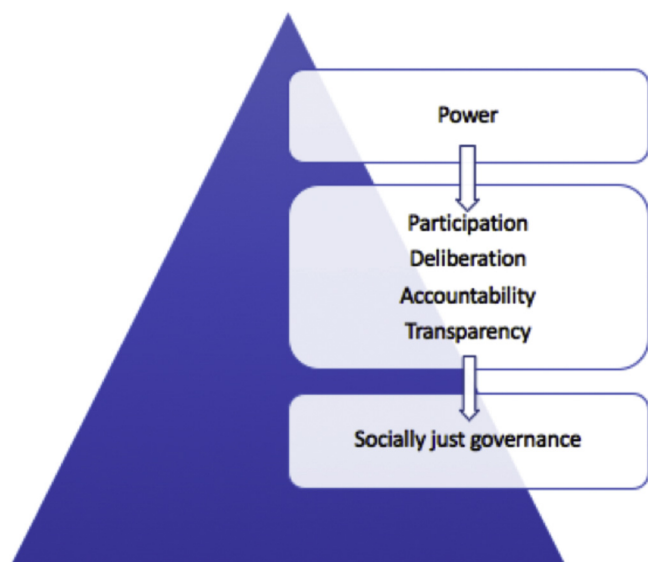


Fig. 1. Conceptual diagram outlining how the concentration of power can be filtered through the attributes of good governance to promote socially just outcomes from EFTs. The blue triangle represents the number of people who benefit from outcomes as power is filtered.

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3. Research approach

The ICMS (*imposto sobre circulação de mercadorias e serviços*) is a levy on the circulation of goods and services and an essential source of tax revenue for state and municipal governments (Soares et al., 2011). State

governments devolve a quarter of the ICMS to municipal governments, distributed mostly according the economic productivity of the municipality. State legislation determines the criteria on which a part of the ICMS is devolved and seventeen state governments have included ecological distributive criteria. The ICMS-E is available for ‘free’ expenditure; it does not have to be used towards conservation, or any other specific activity. Local governments can increase their share of ICMS-E revenue by enacting legislation that improves environmental quality or by implementing new areas of conservation.

This research will explore the application of the ICMS-E in the coastal state of Paraná in southern Brazil. This version of the ICMS-E distributes a percentage of the revenue to the proportion of municipal territory designated to conservation (IAP, 2016). The legislation has evolved from simple compensation to providing an economic incentive for local conservation action (Loureiro et al., 2008). Since 1996 the ICMS-E has been determined by calculating the proportion of each municipality’s territory under environmental protection, weighted by the category of protection and a quality factor, which measures the effectiveness of the protected area in maintaining biodiversity (IAP, 2016). The ICMS-E arrives in municipal accounts weekly and is separated from the rest of the ICMS, allowing local administrations to easily recognise the value generated by the presence of protected areas.

This research questions whether the ICMS-E incorporates positive aspects of good governance to promote power distribution between stakeholder groups and create beneficial socio-economic outcomes. Lessons may inform the design of EFTs elsewhere to fulfil their potential role in a policy-mix for socially-equitable conservation.

4. Methods

4.1. Study area

Fieldwork was undertaken in late 2016 in the case study

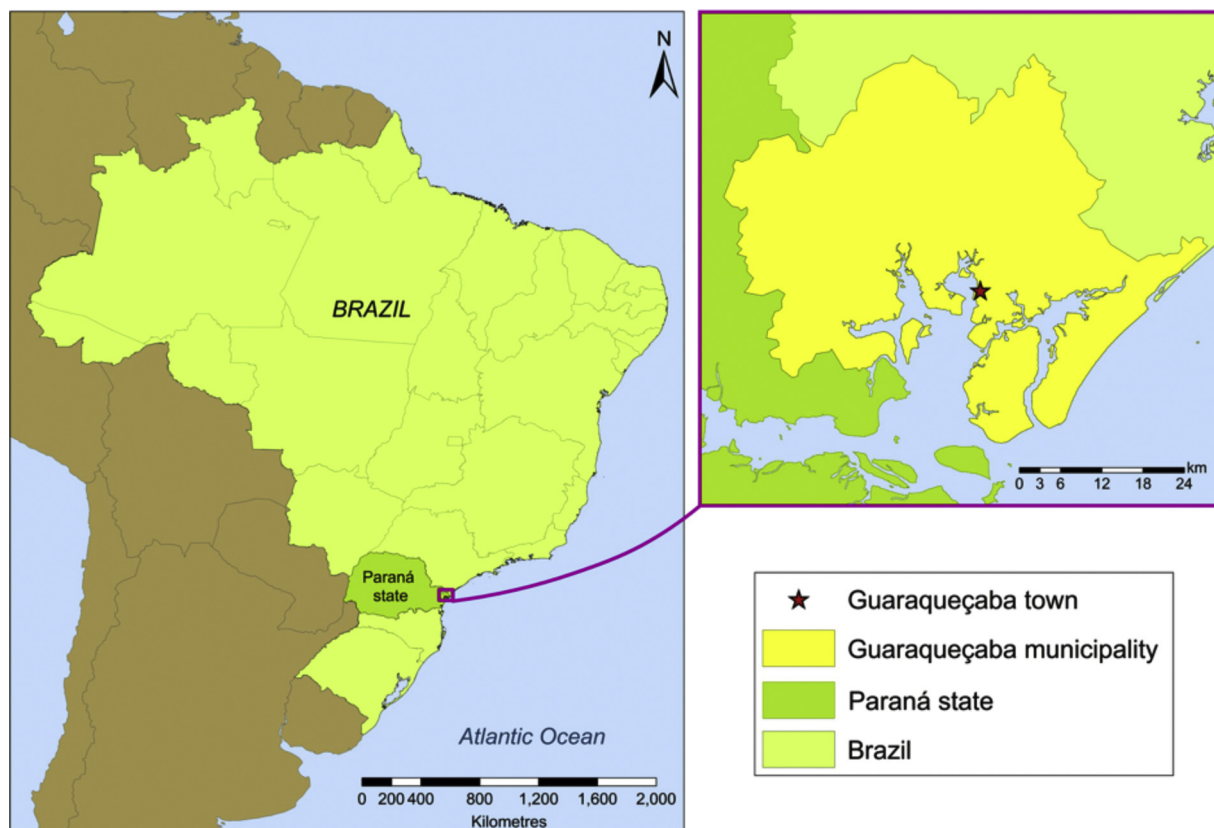


Fig. 2. Location map of Guaraqueçaba, Brazil.

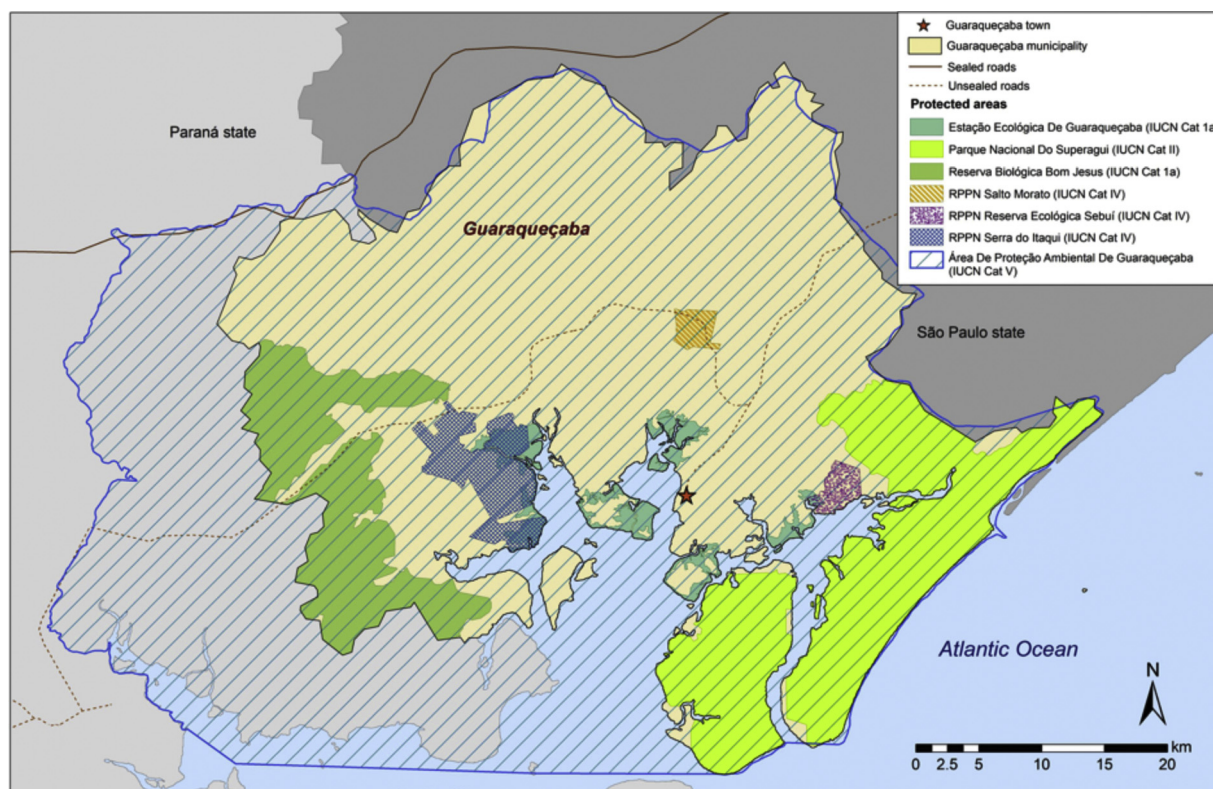


Fig. 3. Protected areas in the Municipality of Guaraqueçaba, Paraná State. Protected area coverage compiled from SPVS (2009); ICMBio (2018) and UNEP-WCMC (2018). Road network from CIESIN (2013).

municipality, Guaraqueçaba, located in the north-east of the state of Paraná, the first state to implement the ICMS-E in 1991 (Fig. 2). Guaraqueçaba, situated entirely within the largest remaining tract of Atlantic forest, is among the poorest municipalities in Paraná, with almost half of the population categorised as living in poverty and illiteracy rates at double the state average (IBGE, 2010). With approximately 98 per cent of its territory covered by state and federal protected areas (Fig. 3), the ICMS-E accounts for almost a third of the total municipal budget annually. The population is under 8000, of which 70 per cent live rurally in numerous small communities located throughout the mainland forest and on estuary islands (IBGE, 2010). These geographical conditions mean that providing basic services such as health, education and waste management is logistically and financially challenging for local government. The municipality is also isolated; the 80 km road that connects the town centre to the nearest highway remains unpaved, in very poor condition and subject to flooding. The 160 km journey to the state capital, Curitiba, takes six to eight hours.

Protected area coverage compiled from SPVS (2009); ICMBio (2018) and UNEP-WCMC (2018). Road network from CIESIN (2013).

4.1.1. Data collection

This research used a multi-faceted sampling strategy, necessary due to the range of participants needed to provide credible data and the large differences in the visibility of target groups. Samples that specifically capture heterogeneity in a population may generate conclusions that adequately represent the entire range of variation and not just a small subset of views (Yin 2011). The sampling techniques used were purposeful and snowball, using reputational and positional criteria (Tansey 2007). Reputational criteria refer to the participation of individuals with particular expertise that is likely to be informative and advance the research aims (Scott, 2017). Positional criteria refer to the recruitment of individuals who are members of previously identified groups which will provide information relevant to the research (Scott, 2017).

Purposeful sampling is a strategy employed to select particular individuals for the important and unique information that they can provide (Patton 2002). Purposeful sampling should seek to recruit participants who might offer contrary views in order to provide opportunity to test for rival explanations (Yin 2011). Snowball sampling is a useful strategy when the population of interest is not fully visible, as in the politically marginalised groups relevant to this study.

Semi-structured interviews (N = 24) were conducted between May and August of 2016 with key informants including members of local government (n = 4), community members (n = 8), a local environmental journalist (n = 1) an eco-tourism operator (n = 1), representatives of environmental agencies (n = 5), scholars (n = 2) and conservation NGOs active in the region (n = 3). Community members, in this case, refers to members of communities living in small, often isolated villages located within environmental protection areas. Generally speaking these communities have little authority or political power and little formal education. They belong to traditional groups which rely heavily on an extractive way of life, largely dependent on forest and ocean resources (Verde Selva et al., 2019). This group was targeted for interviews due to their relationship with the ecosystem in which they belong, providing a perspective that is very different to the population who live in the town centre.

During field research care was taken to obtain informed consent. All participants were presented with an Information Sheet, written in plain Portuguese language, and asked to sign or write their name on a Consent Form elaborated for this purpose. Given that many interviewees belonged to either privileged or marginalised groups care taken to set participants at ease and treat them equally, independent of their position. Special considerations were taken when interviewing members of rural communities. Due to low levels of formal education of some participants, the information contained in the Information Sheet was read aloud and discussed to alleviate potential issues of distrust or misunderstandings. Participants were also verbally informed in simple language that there was no obligation to answer any questions and they

were free to withdraw at any time without repercussions.

Participants were asked questions on themes such as knowledge of the ICMS-E, participation in local political processes and decision-making, participation in the application of ICMS-E revenue, access to services and access to governance structures. Interviews were audio-recorded and transcribed verbatim. The research was also informed by the examination of documents including local and state legislation, decrees and justifications, technical reports, grey literature and academic literature.

The software program Nvivo 9 was used to manage, code and qualitatively analyse the transcripts. Data analysis began with a reading of all material to achieve immersion, followed by rigorous and systematic reading that enabled the derivation of themes, or codes (Miles and Huberman 1994). The process of coding refers to carefully reading and distinguishing sections of text according to the themes it embodies. Each code represents one concept and multiple codes can be applied to one section of text (Patton 2002). In this approach information is obtained directly from participants, without the imposition of pre-conceived categories or theoretical perspectives (Hsieh and Shannon 2005). Passages were coded until saturation was reached, that is, no new aspects arose (Strauss and Corbin 1990). This process allowed the identification of themes important to participants, the similarities and difference across groups and interrogation of patterns and relationships (Thomas 2006). The use of software enabled the systematic recall of data that have been coded for a particular concept. To report findings exemplar quotations were chosen that represent the themes that arose. These quotes are used throughout the following chapters as evidence to support the findings (Hsieh and Shannon 2005).

5. Results and discussion

5.1. Local governance of the application of revenue in Guaraqueçaba

The factors which most affected the governance of the application of ICMS-E revenue were the lack of institutional capacity, leading to inefficiency, and issues associated with the broader political system which does not demand adequate accountability and transparency.

Local government may use ICMS-E revenue in any way that supports their political agenda. Those actions may, however, be subject to constraints, such as a lack of institutional capacity (Hayward and Lukes, 2008). In some cases, the structural limitations imposed on Brazilian municipal governments have been exacerbated by the national process of decentralisation.

The Brazilian constitution of 1988 started a process of decentralisation of public power and resources, not just to consolidate the democratic process after 20 years of military dictatorship, but with a vision of improving the efficiency and effectiveness of public policy implementation (Limana, 1999). Local governments became increasingly responsible for the provision of basic services and tributary reform provided means by which local governments could generate their own revenue. However, this was insufficient to guarantee financial autonomy that matched the acquired political autonomy. Brazil's tributary system is considered the most complex in the world and the sources of revenue generation made available to municipal government present a large degree of difficulty in administering and exploiting to their full potential (Baiocchi, 2006; Gramkow, 2015). Municipalities often do not have access to sufficient resources, or precise and current information about how to increase revenue (Souza, 2001). The local sphere of government is almost totally dependent on intergovernmental transfers from the states and union; seventy per cent of municipal governments rely on intergovernmental transfers for 80 per cent of their budgets (Batista, 2015).

Decentralisation requires complex institutional and political engineering, however, some assert that in Brazil the process occurred without sufficient consideration of the financial and administrative capacity of municipal governments (Souza 2001). Municipal

governments in some parts of Brazil do not have capacity to expand the resources they can access, neither resources available to invest in infrastructure, services or the local economy. In some cases, the municipal budget is sufficient only for the payroll of public servants. These municipalities lack economic activity and are limited also by the poverty of their population (Souza, 2001).

In Guaraqueçaba there is evidence that structural limitations and a lack of institutional capacity constrain the actions of local actors. Whilst the ICMS-E represents a considerable proportion of the municipal budget, the overall financial resources available to municipal government are extremely low. With a high incidence of poverty and limited economic activity, Guaraqueçaba's municipal government is almost completely unable to generate its own revenue; intergovernmental transfers from state and federal spheres account for over 90 per cent of its annual budget (IBGE, 2010).

The mayor confirmed the difficulties associated with almost all municipal income being earmarked for specific services, and identified the ICMS-E as an important resource,

“Almost all the money we receive is assigned to a particular service, like health. I can't use it for anything else. The ICMS-E is one of the only sources of free revenue for the municipality.”

Another representative of local government demonstrated good knowledge of the ICMS-E and had clear intentions for its application.

“I understand that the ICMS-E should be used to involve the population in environmental preservation.”

In Guaraqueçaba the large majority of the ICMS-E resource was used to pay the salaries of municipal employees. The local administration was the largest employer in Guaraqueçaba, responsible for two thirds of formal employment, so this application supports an important public function (IBGE, 2010).

In 2015 a portion of the ICMS-E was used to implement a program with environmental and social outcomes known as *Programa Estrela do Mar*, the Starfish Programme. Three hundred women from island communities were rewarded monthly with a *cesta básica*, a basket of basic food items defined by federal law and intended to feed a family for a month. In return, the women spent three mornings a week patrolling beaches to collect and sort rubbish for recycling or landfill. The programme aimed to provide an alternative source of basic alimentation to poor women and their families, whilst improving environmental education and reducing pollution in areas of touristic value. The mayor, the main author of the project, described her intentions,

“There is a problem to be solved, which is the question of income generation, principally for the women. The men are born fishermen, and the family rely on that for subsistence, but the woman is idle. When the fishing is favourable there is an income for the family, but when he doesn't bring lunch, the family needs to buy other food.”

The payment of participants was made with goods, rather than direct monetary compensation. Maintaining and fostering autonomy and self-determination are important to the outcomes of economic instruments for conservation, helping to avoid eroding intrinsic motivations for conservation and improve social capital (Cetas and Yasué, 2017). The social capacity, or collective agency of a group within the community, is a form of democratizing power that operates within and upon structural constraints (Hayward and Lukes, 2008). The project, by paying in goods, may not contribute to the financial autonomy or collective agency of the women. Evidence from other Brazilian social policies demonstrates that a small increase in revenue available to women can lead to transformative change (Rego and Pinzani, 2013).

Just six months after the program was implemented the public prosecutor recommended that Guaraqueçaba cancel its tender for the purchase of the *cesta básica*, due to irregularities in the purchase of over R\$1 million (232 000 Euros¹). Additionally, the total number to be

¹ all currency conversions are based on conversion rates from December 2016 (www.xe.com)

purchased was very high, larger than the population of Guaraqueçaba (MPPR, 2016). In 2016, after just one year of functioning, the program was suspended by the subsequent administration.

The effective application of limited resources appeared to be hindered by inefficiency and a lack of institutional capacity, as described by members of local government,

“We experience a lot of operational difficulty. I think our management problem is very great, even more so today that our institutions are like this. We are very poorly informed; our background is very bad.”

“We have difficulty in organising ourselves, so the fault is partly ours.”

The Municipal Efficiency Ranking is a tool developed to inform the public about how well municipal money is being used by to provide public services. Based on indicators of health, education and sanitation and the ability of municipalities to generate revenue, the ranking shows that only 24 per cent of municipal governments achieve 50 per cent or higher spending efficiency. The national Municipal Efficiency Ranking places Guaraqueçaba in the lowest category, ‘inefficient’, and in the bottom 20 per cent of the country, despite being situated in one of the wealthiest regions of Brazil. The Municipal Performance Index, measured by the Paraná state government and based on indicators of providing health, education and jobs, ranks Guaraqueçaba in the bottom 18 of the 399 municipalities of Paraná (IPARDES, 2013). Political and economic isolation have led to stagnation in Guaraqueçaba, and administrative processes are defined by inefficiency and a lack of technical capacity. This is supported by research which suggests that smaller municipalities, in terms of population size, are the least efficient in the application of resources and the least capable of generating their own income (Boueri et al. 2015; Azeredo and Lobo, 2005).

Community members were critical of the ability of the local authorities to effectively administer ICMS-E resources to adequately support communities. Better application was considered as having potential to reduce their need to utilize the natural resources from protected areas, an environmental crime punishable by fines and prison. This was described by a member of an island community,

“The money comes from the reserves. But the government needs to know how to administer it. Not just for education or health but in other areas that need it, like the environment. They need to understand the side of the fisherman too. He doesn’t have any resources, so he will want to invade an area that has them, even if it is protected.”

Community members criticised local government for their management generally,

“The little money they have, they don’t use in the correct manner, so everything gets more complicated.”

Despite federal legislation that demands transparency in municipal spending there is very little information on how governments of any level allocate their resources (Lopes, 2007). This reflects a larger problem in the Brazilian political system, as explained by a community representative,

“Here in Brazil, this is what happens. The problem isn’t how the money from the ICMS-E is spent, but how all public money is spent. It is spent very badly.”

Guaraqueçaba exemplifies the untenable situation of some Brazilian municipalities; it is a small municipality dependent largely on inter-governmental transfers and unable to generate revenue locally from a population experiencing high levels of poverty. Guaraqueçaba’s municipal budget is insufficient to develop infrastructure, livelihood programs or improve services, especially considering the sparse distribution of the population across forested, mountainous terrain and estuary islands. Technical and administrative capacity and spending efficiency are poor, exacerbating the limited access to financial resources. It has been asserted that public servants may capitalise on operational difficulties and a lack of capacity to facilitate illicit transactions (Azevedo Sodr  and Colaço Alves 2010). In this sense, and without the ability to determine the intentions of a public actor, it may be difficult to distinguish between occasions of intentional corruption and poor management. The ability to monitor the activities of local public servants is

related to the wealth of the population, with deviations of public funds being limited in municipalities with richer and better educated populations (Albuquerque and Ramos, 2006).

5.2. Power dynamics - reinforcing the status quo or creating opportunity?

The main aspect of local power dynamics that influenced the social outcomes of the ICMS-E was the concentration of power to an elite section of local society, and the invisibility of the rural majority. In Guaraqueçaba, the low population means that the diversity of communities (over 50 throughout mainland forests and estuary islands) is represented by just nine local councillors. In eight out of the last nine elections (since 1989), the person elected to the position of either mayor or vice-mayor belonged to one of two local families. The concentration of power in Guaraqueçaba was described by a local journalist, who explained the role of a single individual in local business and politics,

“He is a business man. He owns the only petrol station and the supermarket. He transformed the public square into his personal warehouse for construction material, it’s full of his bricks. He finances all the political campaigns and then cashes in afterwards. Nobody can touch him. He is a bad guy.”

Evidence from Brazil suggests that the local elite exert a large influence on municipal governance, directing activities towards their interests (Rezende, 1997). Mechanisms to increase political participation of minority groups do not exist with the ICMS-E framework. According to the mayor, there was not, and has never been, community involvement in the application of ICMS-E revenue, however there were instruments to encourage participation in the management of the protected areas. The ICMS-E was originally legislated as a response to the inability of local government to generate economic activity on land under environmental protection and interacts strongly with conservation legislation. Participatory mechanisms in the form of park councils were established by state and federal environment agencies to promote co-management of the protected areas, however they confronted barriers in effectively incorporating community views. A researcher, involved in meetings between park managers and local government, where community interests should also have been represented, explained the difficulty in accessing these participatory processes,

“The invitations were sent by email. And if the people don’t have electricity? Much less they are going to have internet, right? How can you invite a community representative to participate by internet? You have to provide mechanisms for participation that guarantee that they will be there.”

Local decision-making processes, including the use of ICMS-E revenue, did not include, even rhetorically, the possibility for participation by community members. In general, a sense of mistrust pervaded the perception of communities towards local politicians, and Brazilian politics more generally. The public faced challenges when trying to create dialogue with the local authorities, as described by the president of a community association,

“When you look for the mayor they tell you she’s not there. You can go back twice or three times, but they tire you out, always saying to try again tomorrow. It’s always been like that, it doesn’t matter who the mayor is.”

A representative from another community asserted that the ICMS-E had actually made access to official information more difficult,

“You search for information in the [legislative] chamber and they don’t give it. They don’t release the accounts or any information about the ICMS-E. The local government don’t want the communities involved because we make work for them, make their lives more difficult. For them it’s easier if we’re quiet or disappear altogether.”

The invisibility of the rural population of this region in local policy, their lack of political voice and inability to demand the services and support they require has been documented (Ferreira et al., 2011; Rochadelli et al., 2015). A researcher who had worked with

communities in this region for almost 30 years explained,

“The communities are invisible, isolated. A community in an extractivist context... is represented as a negative presence, an annoyance.”

She further asserted that the application of ICMS-E funding reinforces existing power imbalances. With little political will to include the rural majority in decision-making processes and bureaucratic obstacles,

“...communities are at the margins, they don't have political expression or access. So, who wins? The mayor, with the people who have power and influence. Not the community, the one who could most use the ICMS-E. In the end, it is they who receive the greatest impact of conservation. And those people are abandoned to their luck.”

The ICMS-E recently stimulated local policy that may further disadvantage some marginalised communities. In 2017 the incentive effect of the ICMS-E prompted local government to begin the process of legislating four new protected areas. According to the proposed legislation the sustainable use reserve that currently covers almost the entire municipal territory would be superimposed with four integrally protected municipal reserves, which imply more stringent land use restrictions for inhabitants, if not their displacement. At the time of writing these laws had not been passed, however this process raises questions of equity. The municipal government stand to benefit considerably from a higher return of ICMS-E based on the creation of strictly protected conservation areas. However, the costs may fall entirely to the communities living in or nearby them, in terms of limitations on livelihood activities and access to natural resources. The ICMS-E legislation does not require that any benefits be transferred to affected communities through services or infrastructure.

The incidence of poverty in Guaraqueçaba, defined as living on less than half of the minimum wage per month, was 48 per cent (IBGE, 2010). Economic opportunity was also lacking, with rural communities highly dependent on natural resource extraction and subsistence agriculture. Only around 18 per cent of the population between the ages of 16 and 65 were engaged in salaried employment (IBGE, 2010). Services and infrastructure available to the rural population were precarious and investment in communities was perceived to be limited to election years. One participant claimed that BRL\$55,000 (16 000 Euros) was spent in her community in the lead up to the municipal election of 2016. Communities received a visiting doctor as little as once a month and many schools had the capacity to teach children only up to the age of nine. Transport and communication services were limited and the most isolated communities did not have guaranteed access to electricity. One community representative described the situation,

“It's all abandoned, everybody suffers a lot. We are lacking a lot of things, a doctor, health, school is missing, a lot is missing. We are still fighting, but we are forgotten.”

A federal park manager, working closely with a community situated at a park boundary, recognised shortcomings in the use of ICMS-E revenue,

“It could be better, principally the question of the application of the resource. In practice, there's no return, neither for environmental questions, nor social ones. For those who really need to benefit, those close to the reserves, there isn't any return.”

He had campaigned local government to link the ICMS-E revenue derived from the Superagui National Park to the well-being of the communities that were affected by its land use restrictions,

“The idea was to create a municipal law which would oblige the prefecture to allocate 30 per cent of what was received for the National Park to health and education in the communities in and around the park.”

However, it was found that there was little political will in allocating the ICMS-E resource directly to the communities most affected by conservation. Despite these difficulties, the park manager still believed that the ICMS-E opened an opportunity for ‘invisible’ communities to gain leverage in their interactions with local government.

“Whenever they are going to demand some municipal health or

education policy we remind them that there is this resource generated by the park. They are empowered by this and can cash in.”

The ICMS-E is generated from the presence of forests for which the rural communities are traditional custodians (Diegues, 2004). Representing up to a third of the total annual budget in Guaraqueçaba, the ICMS-E could be the economic lobby of powerless rural communities, potentially opening up access to local governance structures not currently afforded. However, organisational capacity required for this may be lacking and community knowledge of the ICMS-E is limited. Knowledge is a resource in the exercise of power; acquiring it can be costly and time-consuming, favoring more powerful actors (Adger et al., 2006).

5.3. Implications for the design of EFTs

The ICMS-E is characterised as a public policy mechanism with the potential to improve local natural resource management by providing additional funds to stimulate and reward conservation activity. Moreover, this type of environmental compensation avoids some of the problems associated with other types of payment mechanisms which target private landowners, with potential to improve equity outcomes. However, when examined at the local level, the institutional and political context were not conducive to achieving integrated outcomes, with implications for policy design.

This research identified several structural and political limitations that hinder the ability of local government to enact effective policy, utilize scarce funding efficiently and incorporate community interests into decision-making processes. Whilst this phenomena is not limited to the ICMS-E and can be seen in numerous situations at the municipal governance sphere and at higher levels of governance, it is important to identify these issues in the ICMS-E as it represents a policy mechanism with potential to address imbalances in the application of public resources, if developed and applied appropriately. The main considerations for the design of EFTs to promote integrated environmental and social outcomes in regions of poverty, low institutional capacity and concentration of power include:

- The transaction costs of EFTs that fall to local government must be considered in their design; accessing incentives must not require high levels of capacity;
- Incentives must avoid stimulating activity that can imply high social costs for marginalised sections of the community;
- EFT fund application must be highly transparent in order to minimize the concentration of benefits;
- Designing EFTs to foster political participation of diverse interests may improve the fairness and effectiveness of fund allocation by increasing transparency and accountability;
- Conservation outcomes should not be the primary objective of EFTs in regions of poverty; a holistic approach to socio-ecological well-being should be considered.

In a context of high political and social inequality and concentration of power, the design of the ICMS-E becomes highly relevant in providing a framework that enables synergies between social well-being and environmental conservation. The ICMS-E, and EFTs in general, have potential to distribute decision-making power on environmental conservation or social projects to communities not normally involved in political processes and capitalise on their local knowledge and preference. However, the ICMS-E legislation does not incorporate mechanisms to ensure this occurs. The ICMS-E does not require the participation of community stakeholders in decision-making through deliberative mechanisms. Nor does it guarantee that the costs and benefits of the conservation activity it stimulates will be fairly distributed, a foundation of good governance (Lebel et al., 2006). Rather, the ICMS-E has incentivised the implementation of conservation areas by local government without public consultation, that may further

Table 2

The presence and absence of the attributes of good governance in the ICMS-E (Paraná state), and implications for the development of other EFTs and natural resource management.

Attributes of good governance	ICMS-E	Policy implication	Implication for natural resource management
Participatory Inclusive stakeholder participation that broadens range of issues and interests considered.	No mechanisms for stakeholder participation or deliberation.	Participatory process for allocation of a percentage of revenue, perhaps through establishment of a deliberative and representative environmental council	Environmental council can be charged with implementing projects and programs to improve local natural resource management. e.g. solid waste management, sanitation, environmental education.
Deliberative Open communication with debate and negotiation.			
Accountable Vertical and horizontal, authorities are obliged to explain decisions, with possible consequences.	Low levels of accountability for local decision making, insufficient interest by upper government spheres and power imbalances horizontally.	EFT frameworks could include reporting mechanisms. Accountability is improved as education and wealth increase so social interventions targeted to these outcomes may provide broad benefits. Expenditure made explicit, through signage and dissemination programs.	Increased trust in public authorities and the application of funds to initiatives decided collectively may reduce environmental conflict in protected areas.
Transparent Processes and interactions are easily observable.	Values are transparent, however application of funds is not clear to general public.	Incentives offered must not encourage local conservation policy that implies negative impacts on rural poor.	
Socially just The central goal of good governance. Fair distribution of costs and benefits.	Application of funds should address interests of broad population base, or target most socially disadvantaged.		Application of funds could be directed to encourage livelihoods that are compatible with land-use restriction, improving economic opportunities and reducing pressure on natural resource extraction.

exacerbate the difficulties experienced by communities inhabiting those areas.

The ICMS-E could provide political leverage for stakeholders with environmental interests. Municipal revenue is boosted by the presence of environmental conservation which may provide grounds for the demands of some local actors, particularly traditional communities, who in their role as traditional custodians of the forest, may demand that a portion goes towards activities that directly benefit them. A participative process in the application of a part of the funding from the ICMS-E may lead to fairer and more effective outcomes, by incorporating the needs and knowledge of the parts of society normally absent from decision-making processes (Verde Selva et al., 2019). This may be beneficial for reducing the concentration of benefits derived from the ICMS-E revenue. For this to occur however, payments must be transparent and well disseminated. Despite Federal law guaranteeing transparency in spending at all levels of government, there is a deficiency of accountability of municipal government, both by means of reciprocal control between government levels, and related to citizen control, determined by factors such as level of education, political participation, information sharing and monitoring by media (Bardhan and Mookherjee, 2006; Savoia et al., 2010).

Drawing from the attributes considered necessary for good governance, it is possible to identify how they could be incorporated into the design of EFTs to avoid some of the negative social implications highlighted by this research (Table 2). Participation in the allocation of a part of the ICMS-E revenue could be done in accordance with the decision of a deliberative environmental council, representative of diverse community interests and including relevant actors from academia to provide a scientific perspective. Alternatively, funding could be specifically allocated for social programs to support the communities most affected by land use restrictions associated with living in or nearby protected areas. Social programs to improve education, welfare and provide economic opportunities and political participation for marginalised communities will positively influence transparency and accountability (Bardhan and Mookherjee, 2006). Crucially, this will depend upon institutional cooperation and coordination to improve the capacity of local government.

6. Conclusion

This analysis of the most mature example of an EFT worldwide has enabled an understanding of the role of power dynamics and local governance in the way that EFT revenue is applied locally. It has also highlighted how entrenched poverty, a lack of financial autonomy and poor institutional capacity on the part of the local administration

prevents progress from being made. The case study demonstrates that EFTs may confront problems of unequal distributions of costs and benefits. The design of the ICMS-E does not provide sufficient opportunity to improve political representation of marginalized groups. When EFTs provide incentives for conservation, care should be taken that this does not exacerbate social inequality, stimulating activities which imply high costs for a segment of the community. The financial benefits received by local government can be partially applied to counteract the negative impacts of local conservation activity. The transparency of the application of funds from EFTs is critical to minimize the concentration of benefits. Whilst EFTs may be considered a useful instrument for addressing the unequal distribution of the costs of conservation between levels of government, it is only with careful design and thorough understanding of the local context in which they will be applied, that the mechanism may be able to produce positive social, and perhaps also environmental, outcomes. These findings reinforce the importance of the design of EFTs in regions of poverty, if they are to promote socially equitable conservation.

Declaration of Competing Interest

I declare that there is no conflict of interest. The work submitted has not been published previously (except in the form of an abstract, a published lecture or academic thesis, that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder.

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Appendix A. Supplementary data

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