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**Community participation in conservation-related law  
enforcement in the islands of São Tomé and Príncipe**

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## Resumo

É amplamente reconhecido pela comunidade científica que nos encontramos num período de acentuado declínio da biodiversidade. De forma a mitigar este processo, têm sido implementadas várias leis e regulamentos de conservação. Contudo, a perda de espécies persiste.

Para que estas leis criadas sejam eficientes, é necessário que sejam cumpridas. Embora sejam realizados grandes investimentos em fiscalização de forma a garantir o sucesso destas leis, persiste uma lacuna de conhecimento sobre os fatores que levam as populações a cumprirem-nas: o que é que motiva certos comportamentos e desencoraja outros?

Assim, é imperativo fomentar o cumprimento da lei, o que pode ser feito com o auxílio de mecanismos de fiscalização, com o objetivo de aumentar os custos associados a comportamentos ilegais, como prisão ou perda de reputação, de forma que estes sejam superiores aos potenciais benefícios. Mais recentemente têm sido desenvolvidas estratégias que visam envolver as populações residentes na fiscalização, reduzindo custos e sensibilizando os locais. Este tipo de estratégia funciona ao tornar a conservação apelativa para os residentes, seja por providenciar incentivos económicos, dar controlo às comunidades sobre os seus recursos ou utilizar normas sociais em seu favor. Embora a conservação com base nas comunidades seja cada vez mais reconhecida como essencial, tendo várias vantagens como acesso a informação mais completa, o que ajuda a fiscalização, e o aumento da aceitação por parte das comunidades, ela pode ter efeitos adversos para os residentes envolvidos, nomeadamente repercussões físicas, perda de rendimento e ostracização.

O declínio da biodiversidade é um processo mundial, mas com particular impacto nas ilhas: embora só cubram 6.7% de área terrestre, elas possuem 20% da biodiversidade global e têm sido palco de 61% das extinções mais recentes, devido a fatores como alterações climáticas e perda de espécies. As ilhas, particularmente os Pequenos Estados Insulares em Desenvolvimento (PEID), são extremamente dependentes economicamente do meio natural e dos serviços que este providencia, mas sofrem de uma falta de recursos, quer sejam financeiros, humanos ou institucionais, que dificultam a conservação da natureza. Existem vários tipos de intervenção para contrariar o declínio da biodiversidade, mas talvez um dos mais conhecidos é o estabelecimento de áreas marinhas protegidas- AMPs. As mesmas têm vindo a aumentar nos últimos anos devido aos seus vários benefícios, tais como regulação do clima, conservação da biodiversidade e restauro dos stocks de peixe. Num mundo onde o peixe contribui para 16,7% da proteína animal consumida, isto é particularmente importante. Embora as AMPs sejam vistas como um método eficaz para proteger habitats marinhos e costeiros, também possuem desafios, como a pesca ilegal. Esta tende a surgir devido ao fraco poder de fiscalização, produto de recursos limitados e capacidade institucional. Assim, o envolvimento das comunidades volta a tornar-se central, particularmente devido à vigilância local, por parte de pescadores e caçadores, e à responsabilidade conjunta dos locais para a fiscalização e a gestão dos recursos - sendo vista como essencial para garantir a eficácia destas áreas.

O objetivo deste estudo foi explorar as contribuições das comunidades locais para a fiscalização, na área da conservação marinha, usando a ilha de São Tomé e Príncipe como caso de estudo. A República Democrática de São Tomé e Príncipe (STP) é uma pequena nação insular (1001 km<sup>2</sup>), que consiste em duas ilhas habitadas e um número de pequenos ilhéus localizado no Golfo da Guiné, África Ocidental. Conhecido pela sua alta biodiversidade e espécies endémicas, o país é considerado um “hotspot” de biodiversidade global. Com uma pequena economia, os seus residentes dependem bastante de recursos naturais: a pesca artesanal tem um papel significativo na economia e na nutrição, providenciando 50% da proteína animal consumida. Embora a pesca artesanal tenha um papel crucial em STP, estudos recentes demonstram que a pesca pode ter impactado os stocks de peixe.

Neste país, a falta de fiscalização de leis e regulamentos de conservação afetam a sua eficácia. No entanto, participação comunitária em atividades de fiscalização já tem acontecido, como para reduzir a caça à tartaruga, ou está a ser considerada, como no estabelecimento de AMPs.

Para explorar a participação comunitária na implementação de leis de conservação, foi adaptada uma *framework* desenvolvida por Sharkey et al. (2024), a partir da qual foi elaborado um guião. Esta estrutura foca-se em cinco dimensões da participação comunitária na fiscalização: o envolvimento de residentes em diferentes pontos da cadeia de fiscalização; a natureza da participação local na tomada de decisões; o apoio externo providenciado aos residentes; as motivações dos locais e o grau de formalização da participação local. Para além de se avaliarem estes aspetos, analisaram-se ainda mais questões relacionadas com conhecimento de leis e regulamentos, perceção relativamente aos agentes de fiscalização, desafios para a fiscalização e o que influencia os residentes a cometerem atos ilegais ou não.

O guião criado foi usado como ferramenta durante o método de recolha de dados que se baseou em entrevistas semiestruturadas, um método de investigação qualitativo que combina um número de questões abertas de forma a estimular uma discussão. O guião foi adaptado a quatro grupos diferentes (trabalhadores de ONG's, funcionários do governo, agentes de fiscalização e utilizadores de recursos naturais), sendo que os participantes destes grupos foram identificados com base em conhecimento prévio do sistema de estudo e com recurso a colaboradores nas ilhas. Utilizando amostragem em bola de neve, foi pedido aos primeiros indivíduos entrevistados para indicarem mais pessoas relevantes.

Com recurso ao NVivo10 (QSR International Inc., Burlington, Massachusetts, USA), codificou-se a data adquirida com análise temática, uma forma de analisar dados qualitativos que envolve atribuir códigos estandardizados quando uma ideia ou um tópico específico surge. Foi adotada uma abordagem híbrida, recorrendo-se tanto à codificação indutiva como à codificação dedutiva.

Os resultados obtidos sugerem que o envolvimento dos residentes na fiscalização tem sido benéfico, sendo que os entrevistados, independentemente do grupo a que pertencem, elogiaram as iniciativas nesse sentido. Relativamente às cinco dimensões de Sharkey, a informação recolhida tendeu a ser consensual entre ilhas. Observou-se que os residentes são contratados para trabalharem na fiscalização, denunciam comportamentos ilegais e promovem a sensibilização mútua. Além disso, verificou-se que estão envolvidos na tomada de decisões a respeito de fiscalização, principalmente quando se trata do caso das AMPs, tendo os pescadores sido consultados na definição das áreas. As principais motivações dos residentes incluíram mais oportunidades de trabalho, melhores condições ambientais e o conhecimento adquirido através de ações de sensibilização. De um modo geral, as motivações intrínsecas e extrínsecas são bastante equilibradas entre ilhas e a formalização dos voluntários não é prática comum em nenhuma das ilhas. Só o fornecimento de ajudas externas foi mais desequilibrado, com uma maior tendência de residentes de São Tomé a confirmarem a sua existência comparada com os participantes do Príncipe.

Relativamente ao contexto do país, este foi descrito, em ambas as ilhas, como pobre, pequeno, onde todas as pessoas se conhecem, sendo que os principais desafios para uma fiscalização eficaz foram a falta de recursos, mencionado mais no Príncipe, e a falta de segurança, mais mencionado em São Tomé.

Os principais fatores apontados como determinantes para a prática de atos ilegais foram a pobreza e a cultura, o que explica o sucesso das iniciativas que se focam em providenciar empregos a membros de comunidades, muitas vezes ex-caçadores de tartarugas, fornecendo um salário estável. Para além disso, a sensibilização é considerada de extrema importância, sendo a única forma encontrada para desafiar padrões culturais, como o consumo de tartaruga. Dado que os residentes são bastante dependentes de recursos naturais, como o peixe, a sensibilização foca-se em como estas iniciativas poderão auxiliar os residentes a ter uma melhor qualidade de vida: as AMPs irão levar a existência de mais peixe no futuro,

o que garante maior segurança económica para os pescadores; as tartarugas podem ajudar no desenvolvimento do turismo, um setor que pode criar mais empregos.

O uso das ciências sociais para fazer este tipo de análise crítica é necessária uma vez que providencia informação a respeito do que leva ao sucesso (ou não) de certos projetos. Assim, uma *framework* como a de Sharkey é o instrumento perfeito para a análise de casos à volta do mundo, para a comparação entre diferentes projetos de envolvimento comunitário na fiscalização, evitando assim o investimento em ideias que poderão ser um erro e aprimorando outras.

**Palavras-chave:** Participação comunitária, fiscalização, conservação marinha, São Tomé e Príncipe, entrevistas semi-estruturadas

### **Abstract**

Community participation in law enforcement can contribute to more effective and equitable conservation. However, our understanding of what promotes or hinders the implementation of such initiatives in small island developing states (SIDS) is limited. SIDS tend to be highly dependent on natural resources, to suffer from lack of capacity and resources, which makes it interesting to study this topic on islands. Using São Tomé and Príncipe as a case study, we explored the potential contributions of locals to conservation-related law enforcement, by conducting semi-structured interviews with 48 key informants, including natural resource users, NGO staff, beach patrollers, government staff. The interviews followed a framework focused on key dimensions, important for understanding the contributions of local residents to protected area law enforcement, created by Sharkey et al., (2024), such as community involvement in decision-making, supply of external aid, involvement in the enforcement chain, etc. By using hybrid thematic analysis, with both deductive and inductive coding, we show that limited enforcement of conservation rules and regulations (e.g. due to lack of resources, of qualified personnel, etc.) hinders their robustness in the area, even though community participation in activities related to conservation enforcement, which raise environmental awareness, provide alternative sources of income for residents, etc., has either been implemented (e.g. for reducing sea turtle harvest), or is being considered (e.g. potential strategy for new MPAs). Furthermore, the community participation activities suggest that, although with differences between the islands (São Tomé having higher levels of violence, more external aid and extrinsic motivations), residents are involved in decision-making, tend to get external aid for volunteering, are mostly intrinsically motivated and tend to not be formalized, with the participants having favorable views when it comes to the community involvement. Ultimately, we provide recommendations for community participation in conservation enforcement where resources are limited and biodiversity is high.

**Keywords:** Community participation, law enforcement, marine conservation, São Tomé and Príncipe, semi-structured interviews

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## List of Acronyms

MPA	Marine Protected Area
SIDS	Small Island Developing State
STP	São Tomé and Príncipe

## 1. Introduction

As biodiversity declines around the world, various agreements, rules and regulations are being implemented in an attempt to halt this process. These can include, for example, local voluntary agreements that incentivize sustainable land use (Prado et al., 2018), regulations that stipulate permitted activities in national parks (Goh, 2020) and international agreements such as the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Challender & MacMillan, 2014). People's adherence to these rules is crucial to their effectiveness, yet non-compliance is often generalized (Arias, 2015). Resistance to conservation measures may be related to issues such as lack of awareness, the perceived illegitimacy of rules, livelihood and economic issues, social norms and ineffective governance (Iacarella et al., 2021; Oyanedel et al., 2020). Therefore, promoting compliance requires a better understanding of what motivates certain behaviors and what discourages others (Fairbrass et al., 2015; Keane et al., 2008).

While enforcement can play an important role in deterring non-compliance (Moore et al., 2017), there are multiple ways to promote compliance that should be considered. Enforcement aims to deter illegal activities by ensuring that any potential benefits are outweighed by the costs, such as imprisonment, fines or loss of reputation within the relevant communities (Albers & Grinspoon, 1997; Clarke et al., 1993; Keane et al., 2008). This is a common approach in protected areas, where rangers sometimes work similarly to police officers, focusing on law enforcement (Massé, 2019). However, other instrumental and non-economic factors also play an important role in motivating compliance (Battista et al., 2018). Alternative or complementary approaches may therefore apply normative and legitimacy-based approaches (e.g. incentivizing pro-conservation social norms and equity of rules) when designing initiatives for rule compliance. These might include providing financial incentives to the communities for engaging in specific practices: in Ecuador, communities were paid for successfully hatched turtle eggs, while still being able to consume them. This led to community participation, since there were no losses, such as losing a form of sustenance, while still benefiting turtle conservation, since the community was still able to deliver hatchlings to the project (Caputo et al., 2005). Giving the communities control over the natural resources in the respective area can also help with rule compliance, like in the Annapurna Conservation area, where giving the local communities legal responsibility over their natural resources led to an increase in forest basal area, number of tree species and abundance of wild animals, due to the communities' change of behaviour (Bajracharya et al., 2005; Nilsson et al., 2016). Finally, using public recognition or traditional social norms can encourage compliance: traditional social norms in Madagascar have been shown to protect threatened species, such as the Milne-Edward's Sifaka (*Propithecus edwardsi*), classified as endangered by the IUCN, since hunting this species is seen as a taboo and is avoided by the communities (Jones et al., 2008).

Community-based approaches are increasingly recognized as essential in conservation (Challender & MacMillan, 2014; Sharkey et al., 2024). For example, there have been calls for local populations to be more integrated into conservation law enforcement (Biggs et al., 2016; Cooney et al., 2016; Schneider et al., 2025). This approach has several advantages, including reduced financial costs: offering a cash reward for information leading to arrests or confiscations in Zambia was found to be four times more cost-effective than foot patrol (Jachmann & Billiow, 1997). Furthermore, information gathered from communities can also be more complete and lead to more effective enforcement by incorporating different perspectives (Berkes, 2004; Berkes, 2007). In addition, involving local people can also reduce community resistance to the implementation of conservation projects (Berkes, 2007). Nevertheless, involving communities in these types of tasks can pose several challenges: residents may be afraid to get involved due to physical danger, it can lead to ostracism by their communities or even loss of income (Travers et al., 2017; Roe, 2015). Furthermore, excluding certain vulnerable groups from community

engagement can undermine the equity of these processes (e.g. women are often underrepresented in law enforcement) (Belecky et al., 2019). The recognition that there may be trade-offs to consider and that local context is likely to play an important role in determining the success of this approach emphasizes the need to consider whether local conditions may be suitable, even before implementation (Travers et al., 2019).

Island ecosystems are disproportionately impacted by biodiversity loss (Fernández-Palacios et al., 2021; Tershy et al., 2015), being greatly affected by invasive alien species (Harper & Bunbury, 2015), climate change (Courchamp et al., 2014) and habitat loss (Brooks et al., 2002). In addition, Small Island Developing States (SIDS) suffer from a lack of resources (financial, human and institutional) and capacity, which hinder conservation efforts (Burt et al., 2023). Conservation is particularly important in these nations due to their high levels of biodiversity and because the socio-economic well-being of their residents depends heavily on the environment and the services it provides (Burt et al., 2021; Burt et al., 2023; Nuno et al., 2024). While there are various types of interventions that can be applied to counter biodiversity decline on islands, such as invasive alien species management (Jones et al., 2016), translocations (Jones & Kress, 2012), in-situ management (Burt et al., 2021) and marine protected areas MPAs (Nuno et al., 2024), many of them rely on local compliance: for example, illegal activities in MPAs often emerge due to weak or lack of enforcement, stemming from limited resources and institutional capacity (Iacarella et al., 2021). Thus, the role of community involvement deserves further exploration, particularly in the form of local surveillance by fishers and hunters and shared responsibility among resource users for management and enforcement, as this is seen as essential to guarantee the effectiveness of these areas (Bergseth et al., 2018).

This study explores the potential contributions of local communities to marine conservation law enforcement on islands, using the island nation of São Tomé and Príncipe as a case study. In this setting, limited enforcement of conservation rules and regulations hinders their effectiveness. However, community participation in law enforcement activities has either been implemented (e.g. to reduce sea turtle hunting) (Ferreira & Prazeres, 2024) or is under consideration (e.g. as a potential strategy for new MPAs). Adapting a framework developed by Sharkey et al. (2024), created to provide an opportunity to engage in comparative research regarding local residents contributions to protected areas' law enforcement, something much more difficult prior to its creation, we will critically examine different factors that may enhance these contributions. These factors include: the involvement of residents at different points in the enforcement system, the nature of local participation in decision making, the type of external support provided to residents, the motivating forces for local participation and the extent to which local participation is formalized. (Sharkey et al., 2024). We will explore to which extent these factors might play a role in the challenges and opportunities illustrated by the current application of community involvement in law enforcement related to sea turtles and identify implications for its potential use in the enforcement of MPAs in the country. To do so, we will consider the variable institutional settings and socio-geographic contexts of two neighboring small islands: São Tomé and Príncipe. Ultimately, the findings will be used to provide recommendations for community participation in enforcing conservation rules and regulations in contexts of limited resources and high biodiversity.

## **2. Methods**

### **2.1 Study Area**

The Democratic Republic of São Tomé and Príncipe (STP) is a small island nation (1001 km<sup>2</sup>), consisting of two inhabited islands and a number of smaller islets located in the Gulf of Guinea, West Africa (Ceríaco et al., 2022) (Fig. 1). Known for its high biodiversity and unique endemic species, the country is considered a global biodiversity hotspot (Roberts et al., 2002). Scientific research in coastal

and marine environments is still relatively scarce, with most studies focusing on ichthyofauna (De Lima et al., 2022). STP has around 1045 species of fish likely present, 15 of which are endemic to the Gulf of Guinea, such as the *Bathygobius burtoni*, a small goby classified as endangered by the IUCN (Da Costa et al., 2022). Other marine vertebrates include 12 species of cetaceans, with some of them being threatened, such as the Sperm Whale (*Physeter macrocephalus*), which is classified as vulnerable by the IUCN (Rainho et al., 2022). When it comes to seabirds, the Tinhosas islets, located near Príncipe, are classified as an Important Bird Area, holding 200 000 breeding pairs of Sooty Tern (*Onychoprion fuscatus*), classified as least concern by the IUCN. This is equivalent to 1% of the global population of the species. It also holds important colonies of Brown Booby (*Sula leucogaster*), classified as least concern by the IUCN (Melo et al., 2022). Furthermore, STP holds five out of seven existent species of marine turtles, playing a crucial role in the conservation and survival of these species, particularly the critically endangered hawksbill turtle (*Eretmochelys imbricata*), as the archipelago hosts the last significant hawksbill rookery in the Eastern Atlantic (Wallace et al., 2011).



**Figure 1.** Location of São Tomé and Príncipe in the Gulf of Guinea

Around one third of STP's 209,000 inhabitants live in rural areas (Instituto Nacional de Estatística, 2025). The majority of the population lives in the island of São Tomé, with only 4.7% living in the island of Príncipe, an autonomous administrative region of STP, with its own regional assembly and regional government (De Lima et al., 2022; Instituto Nacional de Estatística, 2025). As a SIDS with the smallest economy (according to GDP) in Africa (International Monetary Fund, 2025), with it being largely agrarian, its people are highly dependent on environmental resources. This is particularly pertinent given that around two-thirds of the population live in poverty and 47% in extreme poverty (Instituto Nacional

de Estatística, 2020). Small-scale artisanal fisheries, which generally use nets, handlines, floating traps and spears (Zacarias et al., 2022), play a significant role in the economy and nutrition, accounting for 50% of animal protein intake (De Labra et al., 2024).

Despite the crucial role of artisanal fisheries in STP, recent studies have shown that long-term fishing may have impacted fish stocks, with artisanal fishers claiming that both the size and number of fish caught have decreased over time (Maia et al., 2018; Porriños et al., 2024). Other potential overexploitation impacts include: a much lower abundance of sharks in STP compared to other tropical locations and different fish assemblages between the islands, which could be related to the higher fishing pressure in the island of São Tomé, leading to the depletion of top predators in these waters (Porriños et al., 2024). The changes in fishing practices, marine degradation and the decline of fishing stocks suggest changes in social and ecological processes. In a country highly dependent on the environment for resources, these changes can lead to considerable livelihood impacts (Nuno et al., 2021).

## **2.2 Key environmental laws and associated efforts for marine conservation**

STP has developed key national laws to promote environmental protection and sustainable resource use. These include: the national environmental law (law no. 10/1999), which provides the basic legislation on environmental protection and sustainable development, defining citizens' rights and obligations as well as offences and penalties; law no. 11/99 on flora and fauna conservation and protected areas, which classifies protected species and regulates the system of protected areas, including the different types of protected areas in the country, such as natural parks and natural reserves, and how they are to be managed. While these laws provide the foundation for environmental legislation in STP, others have been produced to address more specific issues.

Although sea turtle conservation efforts in STP began in the 1990s to address issues related to commercial, cultural and subsistence uses of sea turtle products (e.g. eggs and meat), the absence of a legal framework to protect sea turtles was identified as a barrier to these efforts (Ferreira-Airaud et al., 2022). For example, in the early 2000s, several sea turtle conservation initiatives were implemented to encourage behavioral change by offering financial compensation and alternative livelihoods. These initiatives included incentive payments for each live turtle found on nesting beaches or at sea and the professional reconversion of tortoiseshell crafters. However, none of these approaches were successful due to financial constraints, inequitable loan distribution, a lack of effective follow-up of professional reconversion and a lack of legislation (Ferreira-Airaud et al., 2022). Following successful advocacy, Regional Legislative Decree No. 3/ALRAP (2009) was enacted in Príncipe, establishing norms for the protection and conservation of marine turtles: in particular, it prohibits their capture and export, setting out offences and penalties. The Santomean government also approved national legislation in 2014 (Decree-Law No. 8/2014, of 28 April) that criminalizes the possession, trade and transportation of sea turtles. Nevertheless, enforcement of this sea turtle legislation has also posed significant challenges, with the relevant institutions often lacking the technical capacity and means to effectively apply legislation. This lack of enforcement led to the need to shift focus from supply and more coercive measures, to demand and voluntary behavior change (Veríssimo et al., 2020). It also emphasized the need to continue investing in community engagement, involving local residents in conservation activities. For example, past poachers were employed to monitor beaches, protecting turtles and providing them with an income, while former turtle traders were trained to make souvenirs (Ferreira & Prazeres, 2024; Vieira et al., 2024). These collaborative efforts are generally led by “Programa Tatô”, a sea turtle conservation programme established in São Tomé in 1998, and Fundação Príncipe's

“Protetuga” project, which has been running since 2015 and is centered on sea turtle conservation in Príncipe Island (De Lima et al., 2022).

Finally, although fisheries are currently used by local communities in STP as a *de facto* open-access natural resource due to poor governance and enforcement, they are state-regulated with some legislation in place regarding catch size, gears and areas. Until recently, the Fisheries Law no. 09/2001 and its associated Regulation no. 28/2012 were in force, establishing restrictions on fishing in bays and river mouths and setting minimum mesh sizes. They also imposed restrictions on certain species, such as sea turtles, cetaceans and crabs. The more recent Fisheries Law No. 09/2022 establishes infractions related to illegal fishing practices and gear, and dictates the entities responsible for law enforcement, how fines should be issued and the actions of law enforcers. In addition, this law recognises MPAs as a mechanism for fisheries management and includes categories such as ‘community voluntary protection reserves’, ‘fishing reserves’ and ‘restocking areas’, which could be considered to fall within IUCN protected area category VI (i.e. protected area with sustainable use of natural resources). A project to establish a network of MPAs in the country has been ongoing since 2018. This project is being implemented by a consortium of national and international conservation and development non-governmental organisations (NGOs), in close collaboration with government agencies and fishing communities. To support the design and designation of the MPA network, the project has promoted a system of participatory fisheries management and marine conservation that prioritizes community engagement in MPA design. Local communities have participated in discussions and decision-making processes, providing input and recommendations on which areas should be protected (Nuno et al., 2024). The project reached an important milestone with the approval of the Decree-Law on MPAs in São Tomé and Príncipe by the Council of Ministers on the 4<sup>th</sup> of April, 2025. The next step is the signature of the President, which will allow the official publication of the Decree-Law in the Official Gazette. A MPA management plan will be required within one-year of the approval of the legislation and potential community involvement in enforcement-related activities is being considered by the implementing partners.

### **2.3 Study approach and tool development**

This study adapted a framework developed by Sharkey et al. (2024) to understand the contributions of local residents to protected area law enforcement. The definition of enforcement used in this context is as follows: “monitoring adherence to rules and agreements and punishing infractions when they are detected” (Keane et al., 2008). Recognizing that there are many approaches to involving local residents in protected area law enforcement but opportunities to compare these approaches have been limited by the lack of a clear, common framework for analysis, Sharkey et al. (2024) proposed a framework focused on five dimensions of community participation in law enforcement: the involvement of local residents at different points in the enforcement system; the nature of local participation in decision-making; the type of external support provided to local residents; the motivating forces for local participation and the extent to which local participation is formalized. This framework was adopted in our study to contribute to a more robust examination of variation in local participation within the enforcement system across case studies (while incorporating additional issues likely to be locally relevant). It is important to note that residents can be involved in different points of an enforcement chain, a concept that explains enforcement as a linked system of seven dimensions: community engagement, such as residents raising awareness; detection, where locals may be tasked with detecting illegal activities; threat removal, such as confiscating illegal nets; arrest, with the locals possibly having the responsibility of arresting offenders; prosecution, with community members possibly serving as witnesses; conviction, since residents may provide evidence to aid with it and sanctioning, where the communities may fine infractors.

Guidelines for semi-structured interviews with key informants were thus designed incorporating questions related to each of the five dimensions mentioned above. Additional questions were added to gather some demographic information about the characteristics of the individuals being interviewed (e.g. work experience and nationality), as well as knowledge about laws and regulations, perceptions about law enforcement, challenges of law enforcement, perceived drivers and deterrents of illegal activity. The guidelines varied according to the specific group being interviewed: NGO staff, government staff, law enforcement officers and natural resource users (see Appendix A, in the supplementary material, for the English version of the scripts). Individuals working for NGOs were classified as law enforcement workers if their jobs were directly related to monitoring unsustainable activities, as in the case of beach patrollers, tasked with monitoring marine turtles' nests and protect them from illegal hunting during their egg-laying. Although the terms "laws" and "regulations" were used interchangeably in the interviews for the sake of simplification, it should be noted that they have different meanings: laws are the product of written statutes passed by the government, while regulations are rules and standards adopted by administrative agencies tasked with enforcing the law (Džemić et al., 2019).

#### **2.4. Data collection**

Semi-structured interviews were used to collect information on community participation in law enforcement. This qualitative research method combines a predetermined set of open questions that prompt discussion with the opportunity for the interviewer to explore particular themes or further responses when relevant (Newing, 2010). Although semi-structured interviews are more labor-intensive and time-consuming than questionnaires, they are also more flexible and in-depth (Adams et al., 2015). We sought to interview individuals from each group (i.e. NGO staff, government staff, law enforcement officers and natural resource users) for each island. Key individuals were identified and approached for interviews based on our knowledge of the study system and through contacts of collaborators on each island; through snowball sampling, these initial key individuals were also asked to refer more relevant people to interview and so on (Naderifar et al., 2017; Newing, 2010). Snowball sampling, although useful, may have also provided a biased view of conservation and law enforcement in the country, since the participants were first indicated by the NGO's. If the interviewees were employed or directly related to these organizations, they are more likely to hold positive views of them, conservation and law enforcement regarding this subject. Furthermore, they might have felt discomfort when talking about certain topics, leading to an inability to gather the "full-picture" of the conservation-related law enforcement in the islands. The search for new people to interview stopped when no new information was gathered during the previous interviews, which is commonly known as the principle of saturation. This principle is the key method to assess the sample size when it comes to qualitative data, and it is reached when the data starts to reveal patterns and consensus. If, when interviewing, the information gathered is still wildly different, more interviews need to be done, since saturation has not been reached. On the other hand, if there is no big variation between answers, it can be inferred that the minimum number of interviews has been attained (Newing, 2010; Saunders et al., 2017). Although the principle of saturation was achieved, the sampling method used led to a difficulty in finding resource users to interview, since the names of the community members that were given were, mostly, beach patrollers already.

Before each interview began, the participants were informed that the data would be collected anonymously and confidentially. This meant that no identifiable details would be taken and that only project members would have access to the data. The interviews were conducted individually, except in one case where two participants were interviewed simultaneously due to a misunderstanding. Individual interviews were chosen to guarantee confidentiality, encourage honest responses and facilitate in-depth conversation. All the interviews were conducted by the same person, and the audio was recorded with

the participants' permission. They were conducted in Portuguese and, on one occasion, in English. The average interview length was approximately 50 minutes, ranging from 27 minutes to one hour and 30 minutes. The fieldwork occurred in the span of two months, from February to April. Prior to conducting any fieldwork, we obtained ethical approval from the Faculty of Social Sciences and Humanities at NOVA University Lisbon (reference: CE-NOVA\_FCSH\_2025/008).

## 2.5. Data analysis

All data were transcribed without using any automated transcription software and then coded, all by the same person as the interviewing process. Thematic coding is a method of analyzing qualitative data that involves assigning standardized codes when a specific idea or topic arises (Newing, 2010). Both inductive and deductive coding were used to analyze the data: to start the process, deductive coding was used to create pre-defined codes and themes (an overarching set of different codes that captures a common pattern present in responses) based on Sharkey et al. (2024) and a targeted literature review on law enforcement in conservation (e.g. Beaumont, 1997; Moreto & Charlton, 2019; Sharkey et al., 2024). After this initial process, inductive coding was done through data familiarization (a process whereby data is initially read to identify codes) to ensure that all the relevant information was assessed, which resulted in more codes and more complete themes (Dawadi, 2020). Once these themes were established, they were analyzed to check overall trends, similarities and differences in the data. The possibility of differences between the islands and the groups interviewed (NGO staff, government staff, law enforcement officers and natural resource users) was analyzed. Thematic coding was done using NVivo10 (QSR International Inc., Burlington, Massachusetts, USA). The thematic framework is presented in the tables S1 and S2, located in the supplementary material.

## 3. Results

### 3.1 Study participants

A total of 48 people were interviewed, including 21 in Príncipe and 27 in São Tomé (Table 1). Only two individuals, who both worked as beach patrollers, did not respond to the invitation to participate in the study. The average age of respondents was 43 years old (ranging from 29 to 75). Most interviewees (n=42; 88%) were nationals, with all six non-nationals working for NGOs. Of the 17 law enforcement officers interviewed, six worked for government agencies such as the police, while 11 worked as beach patrollers in NGO conservation initiatives. No women were interviewed in the law enforcement officer category. In São Tomé, no contact of a woman that worked in this area was given and, in Príncipe, although there were two female beach patrollers, they never agreed to an interview. It should be noted that there was sometimes an overlap between categories (i.e. beach patrollers were also natural resource users, given the high local reliance on fisheries). In this case, beach patrollers could be interviewed as natural resources users if the guidelines used were the ones for this group and not the ones used for law enforcement officers. This only happened with the resource users interviewed in São Tomé.

**Table 1.** Key characteristics (i.e. key group represented, sex and island of residence) of individuals interviewed in our study (n=48)

Key group represented	São Tomé		Príncipe	
	Men	Women	Men	Women
NGO staff	5	3	5	4
Government staff	4	0	2	2
Natural resource user	2	0	2	2
Law enforcement officer	13	0	4	0

### **3.2. Contextual characteristics of conservation-related rule breaking and enforcement in São Tomé and Príncipe**

#### **3.2.1 Contextual characteristics of STP**

When asked about various aspects of law enforcement and law breaking in STP, the participants often described the islands and their people to provide context, whether geographical, social or economic. The most common word used to describe the islands was small (mentioned by 9 participants; 19%) and, although Príncipe is a much smaller island when compared to São Tomé, residents from both islands mentioned their size, without a majority from either one. Regarding this description, one NGO staff member (P11) said: *“It’s a small island so people know who is doing the illegal activity...”*. Island size was referenced due to its influence on community participation, environmental impacts and economy, as shown by the following comment by a governmental worker (P06): *“The difference between us and other countries is that we don’t have forestry companies (...) What makes it difficult is the territorial extension: the country is small and companies need space.”* The size of the islands was also mentioned by a law enforcement officer (P32) due to its influence on marine turtle conservation: *“In a small country like ours, and with the hardships we have, there is always going to be people who disagree with each other, people who go after one another because they are protecting the turtles”*. Other influential contextual issues were identified, including: the perceived individualistic culture of the people of São Tomé, which makes it difficult to collaborate on business ventures and achieve common goals (10%; n=5); the lack of anonymity in community settings due to the small size of the island and its population (10%; n=5); the abundance of family ties (6%; n=3), which inhibit community members from taking action against illegal activities; the close-knit communities (4%, n=2), which make it difficult for outsiders to engage with and to persuade residents to participate in conservation activities, and the poverty of the country (4%, n=2), a hindrance for conservation efforts. The country’s poverty was mentioned by an NGO worker (P04) due to its influence on the relation between the residents and the marine turtles: *“It’s a poor country, where a lot of people don’t earn enough to feed their families throughout the month (...) If someone from a fishing community sees a turtle, it’s a way to get by”*. Furthermore, it’s important to note that the communities were both described as individualistic and tight-knit, two adjectives that seem at odds with each other. Thus, it’s imperative to differentiate between community/ family life and business: although people tend to be close with each other, protecting the community from outsiders and from perceived threats, due to shared experience and, a lot of times, family ties, this does not mean that when it comes to money-making, such as their jobs/ source of income, people do not mostly try to fend for themselves, making collective action difficult.

Fisheries were also mentioned to provide context about the local population's relationship with, and dependency on, the ocean and its resources. Nine participants (19%) mentioned the importance of fisheries, six of whom were community members who rely on them for sustenance and income generation. One NGO staff member (P10) said: *“We know that 60% of the protein consumed in São Tomé and Príncipe comes from fish, therefore one of the biggest resources in the island is fish”*. Twelve participants (25%) also noted that fisheries are declining, with a variety of reason being mentioned, including: inadequate fishing practices (8%; n=4); interference from foreign vessels (6%, n=3); deep-sea fishing and an increase in the number of fishers, both mentioned by one participant (2%).

#### **3.2.2. Awareness of conservation-related laws, regulations and key actors**

When asked to list laws and regulations related to the environment and natural resources in STP, respondents most frequently mentioned taxa-specific restrictions (71%; n=34), including those related to protected species. The marine turtle ban was the most frequently cited example (69%; n=33), followed

by restrictions on other groups, including cetaceans (8%; n=4), sharks (8%; n=4), sea cucumbers (6%; n=3), birds (2%; n=1) and seahorses (2%; n=1).

The second most frequently cited regulations were related to fishing practices (63%; n=30). Fifty per cent of participants (n = 24) mentioned minimum fish size and mesh restrictions, followed by fishing in bay areas (33%; n=16) and the restrictions of trammel nets, commonly known as “rede feijão” (n=5; 10%), and gillnets, known as “rede brisa” (8%; n=4). The use of explosives, maximum distance from the coast at which small-scale fishers are allowed to operate and the use of diving tanks for fishing were each mentioned by one person.

Other types of rules and restrictions mentioned included: illegal sand extraction (27%; n=13); provision of permits, both for fishing and logging (21%; n=10); illegal logging and fire making in forest areas (15%; n=7); building restrictions (8%; n=4); illegal hunting (2%; n=1), illegal waste disposal (2%; n=1) and illegal use of chemicals (2%; n=1).

Finally, 33 (69%) of the participants demonstrated familiarity when it comes to the MPAs designation process, with 18 (86%) being from Príncipe and 15 (56%) from São Tomé.

When asked to list organizations related to conservation and law enforcement (other than their own, in the case of participants who worked in one), participants named 28 organizations: 12 NGOs (43%), with four being involved in conservation law enforcement, such as with the case of the beach patrollers; eight governmental agencies (29%), with six having workers designated for conservation law enforcement and four law enforcement units (14%), like the Port Authority, the Coast Guard, the Police and the UPAB (“Unidade de Proteção do Ambiente da Biodiversidade”), a special branch of the police dedicated to protecting the environment and biodiversity. The most frequently mentioned organizations were the Port Authority (“Capitania dos Portos”) and the Directorate of Fisheries (“Direção das Pescas”), cited by 20 (42%) and 16 participants (34%), respectively. The University of São Tomé, community associations, a private sector representative and a specialized UN agency were each indicated by one person, with all of them being mentioned due to their conservation work, not law enforcement.

Among the six natural resource users interviewed, all reported conservation laws as positive, especially due to fish scarcity. One community member (PO8) stated: *“For me they (laws) bring no problem because they exist to help, to see if the fish increases again”*. In addition, four of them claimed that law enforcement agents tended to be respectful when addressing residents, with only one (P28) mentioning negative interactions: *“They talk to people with a lot of hate, a lot of disrespect...”* Although seen as respectful by most, law enforcement was regarded as being inadequate (not doing their job, arriving late, etc.) by 14 (29%) of the overall participants. For example, one NGO worker (P04) said the following: *“Every year we report people, but the police, law enforcement in general, don’t do what they are supposed to do”*. A resource user (P33) also stated: *“A lot of the times the police does not live up to the expectations. They don’t arrive on time, etc.”*

### **3.3 Challenges for conservation-related law enforcement**

The interviews revealed a wide range of challenges law enforcement and conservation face. These were categorized into: logistical, professional, legal, social and governance, with this one being mostly about how the government works and its problems.

Logistical issues (Table 2) were the most frequently cited type of challenge, with 36 (75%) interviewees mentioning it. Although they were cited by the majority of the participants, 90% (n=19) of Príncipe’s mentioned it, much more than the 63% (n=17) of São Tomé’s. The most cited factor was lack of resources, many interviewees (67%; n=32) having pointed it out, with Príncipe’s participants (81%; n=17) being much more represented than São Tomé’s (56%; n=15). Transportation, such as boats and

motorized vehicles for law enforcement agents and conservation staff to carry out their duties, was identified as severely lacking, as was fuel. Lack of qualified personnel (35%; n=17), with several participants, 11 (23%) being from NGOs and six (13%) being government workers, noting that there were often not enough people with the required skills to carry out the necessary tasks and lack of funding (19%; n=9), mentioned mainly by NGO workers (13%; n=6), were also identified as logistical challenges, although it should be noted that lack of funding can be seen as the overarching issue affecting broader logistics.

**Table 2.** Logistical challenges for law enforcement pointed out in both islands (number of participants mentioning each type of consideration is mentioned below)

Main Challenge	Specific Challenges	
	São Tomé (n=27)	Príncipe (n=21)
Logistical Challenges (n=36)	Lack of resources (56%; n=15) “We have a problem with infrastructure. There is a lack of it, a lack of proper boats and enough fuel to be able to monitor illegal activities in the ocean.” [NGO worker (P30)]	Lack of resources (81%; n=17)
	Lack of qualified personnel (26%; n=7)	Lack of qualified personnel (48%; n=10) “The first problem is lack of people or capacity; there is not enough personnel.” [NGO worker (P11)]
	Lack of funding (26%; n=7) “The lack of funding is also a problem.” [NGO worker (P16)]	Lack of funding (10%; n=2)
	Lack of training for workers (7%; n=2)	Lack of training for workers (19%; n=4) “There are a lot of training events that are done in São Tomé, just like abroad, but they don’t invite people from Príncipe.” [Law enforcement agent (P02)]
	Lack of materials’ maintenance (4%; n=1) “There is also a boat that always has problems and doesn’t have any maintenance. That is a challenge.” [Beach patroller (P32)]	Lack of materials’ maintenance (5%; n=1)
	Personnel management (4%; n=1) “Managing human resources is very complex and we have a very large team.” [NGO worker (P16)]	
	Money management (4%; n=1) “We have a Port Authority that receives very little funding from the state and then it is not managed well, so it’s useless.” [Beach patroller (P32)]	

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Services' centralization

(4%; n=1)

“There is a lack of directorate stations away from the city. If something happens in the south, when we arrive there, the offenders have already disappeared.” [Government worker (P24)]

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Professional challenges (48%; n=23), presented in the Table 3, focused on working conditions and, regarding them specifically, 40% of the participants (n=19) cited lack of safety when it comes to law enforcement work as a challenge, with nine (19%) being classified as workers of this area that said this was something they experienced normally. Four (8%) other participants, such as government workers (4%; n=2), NGO workers (2%; n=1) and resource users (2%; n=1) also complained of experiencing lack of safety due to their involvement in conservation work (NGO worker) and in conservation law enforcement (government workers and resource user). These interviewees claimed that reports of threats and stories of aggression from the residents towards conservation law enforcement workers were common, especially in the island of São Tomé (52%; n=14). One government worker (P24) told the following story: “*In some areas of the country, such as Neves and Ribeira Afonso, the agents can no longer act since there have been cases where there were revolts against them and they were stoned. Their cars were damaged; they were made hostages... all because they tried to stop the illegal activities that were happening*”. Low salaries (21%; n=10), with four (8%) of the answers being from beach patrollers, was the second most mentioned professional difficulty. In total, 59% (n=16) of São Tomé’s interviewees cited professional challenges, as opposed to the 33% (n=7) of Príncipe’s.

**Table 3.** Professional challenges for law enforcement pointed out in both islands (number of participants mentioning each type of consideration is mentioned below)

Main Challenge	Specific Challenges	
	São Tomé (n=27)	Príncipe (n=21)
Professional Challenges (n=23)	Lack of safety (52%; n=14) “I remember once someone telling me to my face, a man that catches turtles saying that if he sees me on the beach, he will beat me up (...) if you talk to them (illegal hunters), they say they are going to kill you.” [Beach patroller (P12)]	Lack of safety (24%; n=5)
	Low salaries (30%; n=8)	Low salaries (10%; n=2) “Some people don’t have motivation because the salaries are super low.” [NGO worker (P19)]
	Work overload (4%; n=1)	Work overload (5%; n=1) “Since there are no human resources, there is a lot of work overload.” [NGO worker (P19)]

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Difficult working hours

(7%; n=2)

“A lot of people don’t want to have this job. Sometimes we need people, but it is a night job.”  
[Beach patroller (P17)]

Regarding conservation-related laws and regulations (Table 4), respondents (46%; n=22) identified three main problems, lack of law applicability being the most mentioned (33%; n=16), due to various factors: a lack of clarity when it comes to fines and sanctions, existing gaps that are yet to be solved and the law enforcement not applying the law when warranted. Nine of the answers (19%) focused on the law gaps, five (10%) on the lack of law enforcement action and two (4%) on both. Both the other mentioned problems, the inexistence of laws needed to go after certain harmful acts (17%; n=8) and a lack of understanding of the laws by authorities (6%; n=3), were cited by more NGO workers, five (10%) in the first case and three (6%) in the last. Out of the 22 participants who mentioned these problems, it is important to point out that 56% (n=15) of São Tomé’s interviewees cited them, compared to 33% (n=7) of Príncipe’s.

**Table 4.** Legal challenges for law enforcement pointed out in both islands (number of participants mentioning each type of consideration is mentioned below)

Main Challenge	Specific Challenges	
	São Tomé (n=27)	Príncipe (n=21)
<b>Legal Challenges (n=22)</b> “This problem (not fining turtle hunters) is related to the law that is not very well- defined, because you don’t know who is supposed to fine, where the fine is supposed to go and it is something that, maybe, the people that deal with the law should define.” [Beach patroller (P17)]	Lack of law applicability (48%; n=13)	Lack of law applicability (14%; n=3)
	Inexistence of laws (11%; n=3)	Inexistence of laws (24%; n=5) “Regarding the majority of the fauna, with the exception of marine turtles, there is not a law that prohibits them. Thus, there is no sanction. If there is no law, you cannot sanction.” [NGO worker (P27)]
	Incomprehension of laws (4%; n=1) “They received the money of the fine and then they asked us what they were supposed to do to the rest.” [NGO worker (P16)]	Incomprehension of laws (10%; n=2)

Community resistance and a lack of environmental awareness among both the local population and tourists were identified as key social challenges (38%; n=18), presented in Table 5. Community resistance was the most frequently cited challenge, with 25% of respondents (n=12) highlighting resistance to conservation efforts and law enforcement. Limited environmental awareness among local communities was mentioned by 15% of the interviewees (n=7), while 6% of the respondents (n=3), all of whom were from São Tomé, mentioned tourist interactions as making the job more difficult.

**Table 5.** Social challenges for law enforcement pointed out in both islands (number of participants mentioning each type of consideration is mentioned below)

Main Challenge	Specific Challenges	
	São Tomé (n=27)	Príncipe (n=21)
Social Challenges (n=18)	Community resistance (26%; n=7)	Community resistance (24%; n=5) “It’s not easy to convince people, grown adults, that already have a formed mind with their morals and principles.” [NGO worker (P25)]
	Local’s environmental awareness (11%; n=3) “That is something related to awareness, because I understand that fishers don’t comprehend that subject (not littering).” [Beach patroller (P32)]	Local’s environmental awareness (19%; n=4)
	Tourist’s environmental awareness (11%; n=3) “The locals no longer have a problem with our work, but sometimes the tourists do. We tell them what they can or cannot do and some understand, some don’t. They get mad and they do it either way. We try to raise awareness, but it’s not easy.” [Beach patroller (P34)]	
	Population’s availability (4%; n=1) “There is a difficulty when it comes to the people’s availability to provide us with information.” [NGO worker (P40)]	
		Population’s encroachment (5%; n=1) “The biggest challenge we have now is the population’s invasion (...) of the park territory.” [Government worker (P15)]

Finally, some respondents (38%; n=18) mentioned issues related to how the government functions (Table 6). For example, 23% of the participants (n=11) cited the government's reliance on external sources for funding and for law enforcement support, a problem only not indicated by resource users, followed by lack of government engagement in conservation matters (15%; n=7), corruption (8%; n=4), mentioned only by government and NGO workers, and poor coordination between government sectors (8%; n=4), which undermines the implementation of existing laws and regulations, an issue cited only by NGO workers.

**Table 6.** Governance challenges for law enforcement pointed out in both islands (number of participants mentioning each type of consideration is mentioned below)

Main Challenge	Specific Challenges	
	São Tomé (n=27)	Príncipe (n=21)
Governance Challenges (n=18)	Dependence on external agents (22%; n=6) “The challenge is enormous, since the country is one of weak resources. The state budget, almost all	Dependence on external agents (24%; n=5)

of it depends on external funding, so we have difficulties with the lack of fishing monitoring, with the lack of law enforcement, especially in the ocean.” [Government worker (P36)]	
Government’s lack of engagement (19%; n=5)	Government’s lack of engagement (10%; n=2)  “We have a lot of interest in more law enforcement agents (...), but it is something that also depends on the government’s engagement.” [Government worker (P35)]
Poor coordination between sectors responsible for enforcement (11%; n=3)  “It’s necessary that there is a better coordination between the law enforcement agents, so that everyone is working on the same plan.” [NGO worker (P23)]	Poor coordination between sectors responsible for enforcement (5%; n=1)
Corruption (15%; n=4)  “They don’t fine people because someone is a cousin of a member of the parliament, of a minister, and then they just need to call the commander.” [NGO worker (P26)]	
High personnel turnover (4%; n=1)	High personnel turnover (5%; n=1)  “One of the big problems is the turnover of people involved in this (conservation law enforcement) area (...) You lose a lot of knowledge.” [NGO worker (P19)]
	Absence of guidelines (5%; n=1)  “I think a big problem is the fact that there are no clear guidelines about what you are supposed to do, starting with the directorates.” [NGO worker (P19)]

### 3.4 Drivers and deterrents of illegal activity

Economic, social and institutional factors were identified as the main drivers of illegal activities related to natural resources (Table 7). Necessity due to poverty and opportunism were the economic factors cited, but their responses distribution did not share similarities between each other: Necessity, the most cited driver, was mentioned nearly equally between the islands, with 15 out of 21 (71%) interviewees in Príncipe and 22 out of 27 (81%) in São Tomé. However, opportunism was mainly cited by residents of São Tomé, with nine of the 12 quotes, equivalent to a third of the interviewees of São Tomé. The Príncipe responses (n=3) only represented 14% of the island’s participants. Both the economic factors had a majority of NGO workers responses, six (13%) when it comes to opportunism and 15 (31%) regarding necessity, but the first had almost the same responses of beach patrollers (10%; n=5) and one (2%) government worker answer, while the second had all the government workers citing it (17%; n=8) and was also mentioned by resource users.

Of the social factors, culture and tradition were the most frequently cited, mostly by NGO workers (19%; n=9) and law enforcement agents (15%; n=7), with a lack of knowledge of both the importance of conservation (13%; n=6) and laws (13%; n=6) as a reason for residents to engage in illegal activities being the second most mentioned, with three (6%) answers from each occupation group. The most cited social factor was balanced between the islands, with 37% (n=10) of São Tomé’s participants mentioning it and 38% (n=8) of the Príncipe ones. When it comes to the lack of knowledge, the results are different: it was mentioned by a third (n=7) of Príncipe’s interviewees, but only 19% (n=5) of São Tomé’s. Furthermore, all the São Tomé’s quotes were related to a lack of legal knowledge, while most of Príncipe’s (n=6) were about lack of knowledge about the importance of conservation. The personality of certain members of the population was only mentioned by five (19%) participants of São Tomé, and a feeling of exclusion was cited by two (4%) NGO workers, one from Príncipe and one from São Tomé.

Finally, infrastructural drivers were also mentioned, with lack of efficient law enforcement, cited by three (11%) São Tomé residents and one (5%) from Príncipe, and accidents due to fishing gear, such as catching smaller fishes by mistake, mentioned by two (10%) resources users from Príncipe

Regarding factors that can dissuade people from engaging in illegal activities, educational, economic and institutional deterrents were identified (Table 7). Regarding the educational factors, only one deterrent was mentioned, being the most cited one: raising environmental awareness. Most of the participants from Príncipe (95%; n=20) cited it as a disincentive for illegal activity compared with 60% (n=16) of residents of São Tomé.

An alternative source of income for the residents was the most cited economic deterrent, with both islands having a third (seven in Príncipe and nine in São Tomé) of their interviewees referring to it and 12 (25%) of the ones quoting it being NGO workers. It is followed by the respondents citing reparations for damage caused by protected species as a way to deter residents from committing illegal actions, with all of the participants mentioning it being beach patrollers from São Tomé. Alternative sources of resources, cited only by government (6%; n=3) and NGO (4%; n=2) workers, investment in communities, cited just by respondents from São Tomé, three (6%) of them being beach patrollers and provision of better gear (2%, n=1), mentioned by one resource user in Príncipe were also indicated as deterrents to illegal activities.

Institutional deterrents were the least mentioned, such as better and more effective law enforcement with São Tomé and Príncipe having a similar percentage of answers: seven participants (26%) of the first and four (19%) from the latter. Furthermore, better legislations were also mentioned, with three (14%) being from Príncipe and six (22%) from São Tomé. Finally, the establishment of MPAs was also perceived as a deterrent by two residents of each island (7% in São Tomé and 10% in Príncipe).

**Table 7.** Governance challenges for law enforcement pointed out in both islands (number of participants mentioning each type of consideration is mentioned below)

	Specific Drivers/Deterrents		
	Economic (n=39)	Social (n=33)	Infrastructural (n=6)
<b>Drivers</b>	Necessity (77%; n=37) “Normally, they catch those small fishes because there are moments when it’s really difficult in the country, and they depend on fishing. We have to do something to see if we can	Culture/tradition (38%; n=18) “These behaviours (turtle hunting) have been happening because it is tradition. People are used to consuming it, mainly eggs and meat. And there is a	Lack of efficient law enforcement (8%; n=4) “The people don’t feel the presence of the governmental authorities, of the police.” [Government worker (P24)]

	earn some money.” [Resource user (P20)]	myth that says that turtle meat gives people life.” [Beach patroller (P07)]	
	Opportunism (25%; n=12) “Another problem is the fact that the people are very opportunistic: when they are at the beach, they may not have gone to catch a turtle, but one appears suddenly and...let’s say it’s free meat so they catch it.” [NGO worker (P04)]	Lack of knowledge (25%; n=12) “We have a lot of fishers that are very ignorant regarding that matter (fisheries). They claim fish does not end.” [Government worker (P35)]	Accidents due to fishing gear (4%; n=2) “Sometimes when people are catching a school of fish at sea, the bigger ones will be above the smaller fish, so when the net closes, it will end up catching the small ones too.” [Resource user (P28)]
		Resident’s personality (10%; n=5) “There are some people that are just hard-headed and insist on doing it (hunting turtles).” [Beach patroller (P17)]	
		Feeling of exclusion (4%; n=2) “A specific group of people think they were excluded.” [NGO worker(P25)]	
	<b>Economic(n=28)</b>	<b>Educational (n=36)</b>	<b>Institutional (n=20)</b>
<b>Deterrents</b>	Alternative sources of income (33%; n=16) “And with this new project of the MPA creation, what we are trying to balance is regarding the livelihoods of the communities, to support them a bit after they are impacted by it.” [NGO worker (P05)]	Environmental awareness (75%; n=36) “When it comes to turtles, people are sensitized, they have knowledge of the law, the law is divulged, there are permanent sensitization campaigns.” [Government worker (P35)]	Efficient law enforcement (23%; n=11) “They (law enforcement) could to their job properly: the coast guard could patrol on the sea. Surveillance missions to control that part (turtle hunting). The port authority would be on the beach and the police, when someone is caught, someone in the community, selling (...) they would apply the law.” [NGO worker (P04)]
	Reparations for damage (13%; n=6) “When a fisher goes to the sea and a turtle eats his fishing line, he talks to us and we give him a new one, so that there is a connection		Better legislation (19%; n=9) “With a law, everything gets better.” [Beach patroller (P12)]

between us and the fishers.” [Beach patroller (P29)]	
Alternative source of resources (10%; n=5) “We have to find alternatives for the people that depend on these resources (turtles).” [NGO worker (P16)]	Establishment of MPA’s (8%; n=4) “Right now, the only way to stop illegal fishing is with the establishment of MPAs.” [NGO worker (P18)]
Investment in communities (8%; n=4) “The population is loyal because they (turtle programs) support them (...) the community benefits because when you help a school, you help a lot of students.” [Beach patroller (P41)]	
Provision of better resources (2%; n=1) “If we had help to get better nets, this problem (accidental catch) would end.” [Resource user (P28)]	

### 3.5 Contributions of local communities to conservation-related law enforcement

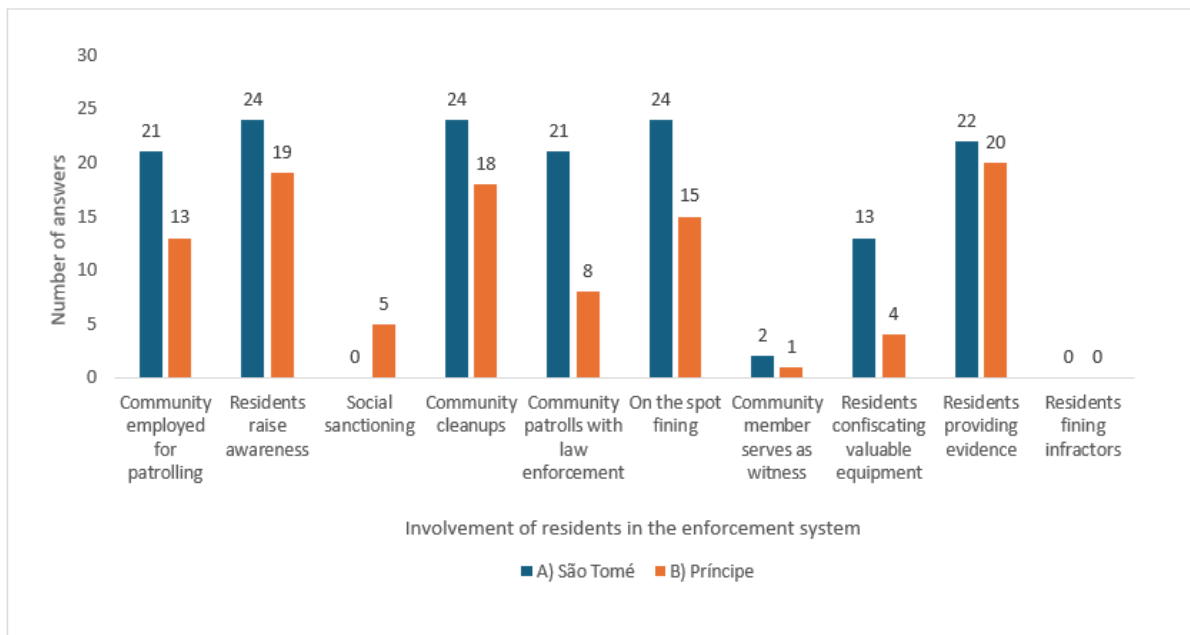
#### 3.5.1 Involvement of residents at different points in the enforcement system

All study participants reported some form of community participation in law enforcement activities (Fig. 2), with a lot of them having connections to marine turtle conservation: For example, regarding community patrolling, one NGO worker (P16) said the following: “*The communities help a lot when it comes to monitoring (marine turtles). We have almost 60 people working, right?*”. Another one (P30) claimed this approach could be used for the MPAs: “*We intend to have this (community patrolling) in the MPAs*”. Regarding community sensitization and denouncing illegal activities, one government worker (P42) said: “*The community members try to sensitize each other and make complaints (regarding illegal hunting of marine turtles)*”. Certain activities, such as the confiscation of valuable equipment, were mostly mentioned due to illegal fishing. One NGO worker (P18) said the following: “*Sometimes when people from other communities go there and fish with nets, they (residents) immediately take it out. They take it out!*”. It is important to note that the community cleanups are a category not existent in Sharkey’s framework, being used here due to the large number of answers and their role in community engagement.

Most activities had similar trends between islands, with a few exceptions: the activities related to patrolling had a higher percentage of answers from São Tomé residents: 78% (n=21) of respondents indicated that community members are employed for patrolling, compared with 62% (n=13) in Príncipe. Similarly, 78% (n=21) reported community patrols with law enforcement, in contrast to 38% (n=8) in Príncipe. Considering more beach patrollers were interviewed in São Tomé, this could explain the

difference in answers. This fact, accompanied by the bigger size of São Tomé, could also explain the difference between perceptions of on spot fining, with 89% (n=24) of São Tomé residents claiming it had happened, compared to 71% (n=15) of Príncipe's. Although social sanctioning, like exclusion and shaming offenders, was only present in Príncipe (24%; n=5), community confiscations of valuable equipment still exhibited a higher difference between island, with 48% (n=13) of São Tomé's residents claiming it had happened, but only 19% (n=4) of Príncipe's.

Regarding the less popular answers, the participants had varying opinions: regarding community fining, 36 of the participants (75%), 16 (76%) from Príncipe and 20 from São Tomé (74%), saw it as problematic, while 13 (27%), nine (33%) from São Tomé and three (14%) from Príncipe, viewed it as somewhat beneficial, although seven (15%) of these had a mixed opinion. The group that presented the highest number of beneficial views were government workers, with five (10%) citing advantages of community fining. The main critiques of this strategy were the fact that it could generate conflict (58%; n=28), with 17 (63%) participants from São Tomé and 11 (52%) from Príncipe claiming it; that it had no legal basis work (19%; n=9), defended by five (24%) Príncipe's residents and four (15%) from São Tomé and that it could lead to the "dilution" of the law (2%; n=1), mentioned by one interviewee (5%) from Príncipe. On the other hand, the benefits pointed out by the interviewees were more community power (25%; n=12), mentioned by nine participants (33%) from São Tomé and three from Príncipe (14%), and an increase in law enforcement (10%; N=5), with three (11%) residents from São Tomé and two (10%) from Príncipe claiming it. As to community exclusion, the majority of the opinions given were negative (33%; n=16), with 12 (44%) interviewees from São Tomé and four (19%) from Príncipe not seeing any benefit in this action. Only four (8%) interviewees, two (4%) being government workers and half from each island (10% in Príncipe and 7% in São Tomé), claimed it could be beneficial, although not specifying why. The main drawbacks given were that it could reinforce bad behavior by not engaging in sensitization with the offender, cited by seven (16%) participants from São Tomé; it could generate conflict, mentioned by two participants from each island (10% in Príncipe and 7% in São Tomé) and that it had no legal basis to be legitimate, mentioned by three (6%) interviewees from Príncipe. Finally, nine participants (19%), with eight (38%) being from Príncipe, claimed that residents serving as witnesses would be difficult to put in motion due to the population's fear of repercussions. However, regarding the opinions of taking offenders to court and solidifying the role of judicial power when it comes to conservation, 19 (40%) participants, with eight (17%) being NGO workers, claimed it would be beneficial, due to conservation needing to be taken more seriously. Furthermore, 18 (67%) of the respondents were from São Tomé. Only three interviewees (6%), all (11%) from São Tomé, deemed it to be problematic due to the possibility of conflict (4%; n=1), the lack of alternatives for residents that can dissuade them from committing illegal actions (4%; n=1) and one (4%) resident didn't give any explanations as to why.



**Figure 2.** Number of survey respondents (N=48) reporting involvement of residents at different points in the enforcement system in: A) São Tomé (N=27); B) Príncipe (N=21).

Community involvement in conservation-related law enforcement was generally perceived positively, with all participants mentioning benefits. Twenty-six (54%) participants mentioned the participation of residents aids law enforcement, with ten (21%) law enforcement agents, seven (15%) NGO workers, six (13%) government workers and four (8%) resource users pointing it out. One government worker (P01) claimed: “Of course it helps our job, because we can’t be everywhere. It helps us a lot.”. Promoting awareness-raising among communities (29%; n=14), with mostly NGO workers (15%; n=7) citing it, and helping achieve ecological outcomes (27%; n=13), mentioned by eight (17%) law enforcement agents, were also frequently indicated as perceived benefits. Other advantages included gaining more in-depth information and being more respected since they had more familiarity with each other (6%; n=3), creating more job opportunities, promoting a closer connection with law enforcement sectors and a higher level of community independence (all mentioned by two (4%) respondents).

Despite the perceived benefits, 40 (83%) of the respondents claimed that the participation of residents in conservation-related law enforcement could lead to problems. The most frequently mentioned (65%; n=31) was community conflict, indicated by 13 (27%) NGO workers, ten (21%) law enforcement agents, five (10%) government workers and three (6%) resource users. A law enforcement agent (P02) said the following: “I believe that community participation alongside law enforcement would be very good, but there are a lot of fights between them”. The lack of training of the communities to be able to do certain tasks and the law being taken less seriously were both mentioned by four (8%) of the interviewees, with the first one having government workers being the group that cited it the most (two (4%) of them) and the second being NGO workers (two (4%) of them). Other concerns raised were: clashes with law enforcement and misguided hate against NGOs (each mentioned by three (6%) respondents), with one NGO worker (P10) saying: “I think we need to be very careful when we mix community enforcement with actual law enforcement, because I think that the communities may mix them. For example: If tomorrow the marine team of an NGO goes patrolling with the Coast Guard, they may see an illegal act and the Coast guard might act. Those fishers will think that it was the NGO that fined them”. Other mentioned concerns were the abuse of power by the communities, cited by two (4%) respondents, the lack of long-term employment for community members and the instability of community involvement, with it not being guaranteed, both indicated by one (2%) participant. Regarding the latter, one NGO

worker (P25) said: “*It (community participation in enforcement) is something very occasional (...) They may support us, but that doesn’t mean that because they supported us today, that tomorrow they will have the same availability and be willing to. It varies a lot*”.

### 3.5.2 Local participation in decision-making related to law enforcement

Regarding decision-making related to conservation enforcement, 40 out of 48 participants (83%) claimed the residents were involved, with there being a higher proportion of Príncipe’s (95%; 20 out of 21) participants mentioning it than São Tomé’s (74%; 20 out of 27 participants). Involvement in choosing the MPAs locations was cited by participants from both islands, nine (33%) residents from São Tomé and 14 (67%) from Príncipe. Furthermore, when it comes to the creation of protected areas in general (terrestrial and marine), 14 (52%) participants from São Tomé and 16 (76%) from Príncipe mentioned community involvement. The four groups of interviewees all claimed it happened with the most represented one being NGO workers, with all of them (n=17) giving positive answers: one NGO worker (P18) mentioned the following: “*The community residents are involved in the decision-making when it comes to, for example, the MPAs*”. Furthermore, one resource user (P08) said: “*When the law regarding the MPA was created (...) Everyone was informed. There were even people going to meetings (about MPAs)*”. All the government workers (n=8) also cited community involvement in decision-making regarding law enforcement, with one (P35) claiming the following: “*When we were preparing the creation process of the MPAs, there was an involvement of all the communities (...) It was the fishers the selected the MPAs, saying that these were zones they wanted to protect because it was beneficial*”.

All the interviewees viewed local participation in these decisions positively, whether they claimed it happened or not, with various benefits and drawbacks, shown in Table 8.

**Table 8.** Perceived benefits and drawbacks of community involvement in decision-making in both islands (number of participants mentioning each type of consideration is mentioned below)

Benefits/ Drawbacks	Specific Benefits/Drawbacks	
	São Tomé (n=27)	Príncipe (n=21)
<b>Benefits</b>	Higher adherence to environmental laws (56%; n=15)	Higher adherence to environmental laws (52%; n=11)  “When they (the residents) are involved, they adhere. Everything becomes easier, even when it comes to them obeying the laws.” [NGO worker (P18)]
	Wider range of opinions (30%; n=8)	Wider range of opinions (29%; n=6)  “Before we create something, we need to have everyone’s opinions (...) to select the areas (for the MPAs), the input of the fishers was fundamental.” [Law enforcement agent (P37)]
	More informed communities (26%; n=7)  “Yes, it is positive that everyone has access to the same information so that later they cannot complain that they did not know.” [Beach patroller (P03)]	More informed communities (29%; n=6)
	Opportunities for the communities (4%; n=1)  “It would be better because the communities would be more involved with law enforcement and monitoring, so the resources spent before in this could be funneled for healthcare, education, etc.” [Beach patroller (P32)]	Opportunities for the communities (5%; n=1)

<b>Drawbacks</b>	Insufficient work to involve residents (11%; n=3)	Insufficient work to involve residents (5%; n=1) “For someone to make a decision, they have to be informed about it and they have to have the capacity for it. A lot of the times we don’t have that. Sometimes I feel like it’s a fake involvement”. [NGO worker (P19)]
		More complicated procedure (10%; n=2) “I think the most negative part of community involvement in decision-making is the time the process is going to take.” [NGO worker (P10)]
	Conflict between communities (4%; n=1) “They asked the people to decide (the MPAs). That created conflict between the fishers of beach Gambôa and the ones from the South, since the fishers from Gambôa don’t have any fish so they come south.” [Beach patroller (P34)]	
	Lack of representativity (4% n=1) We have organizations in various parts of the country that do not work and a lot of the times, when you are doing these consultations, you call the leader or the president of the organization. Now, if organizations don’t work, the president will be sharing his personal opinions, not the opinions of the organization. If he was invited to something, his duty is to sit with the organizations, talk with them and then share everybody’s opinion.” [NGO worker (P04)]	

### 3.5.3. External support provided to residents for involvement in enforcement

In both islands, locals involved in conservation-related enforcement as beach patrollers are employed by NGOs and receive a salary, training and materials for their work. However, other residents are also involved in conservation-related enforcement. Twenty-two (81%) of the participants in São Tomé and 11 (52%) in Príncipe, a much smaller percentage, mentioned that residents receive external support for their involvement. Overall, the group who had more participants indicating external support provided to residents were members of the NGOs (31%; n=15), seven in Príncipe and eight in São Tomé. Furthermore, although no law enforcement agent in Príncipe mentioned this, nine (19%) did in São Tomé, a result of beach patrollers (seven out of the nine) being part of this group. The type of support offered can differ. For instance, eight (30%) interviewees from São Tomé, compared to only three (14%) of Príncipe, mentioned that food and drinks/food allowance was given to residents present during community cleanup events. Both interviewees from São Tomé and Príncipe claimed that materials were supplied for volunteers, with seven (26%) residents from São Tomé and five (24%) from Príncipe citing it. Regarding this, one NGO worker (P04) said: “*For example, someone that saved a turtle and then informs us: We gift them a shirt, a hat, any type of material. It has happened with children, so we gave them school kits*”. Materials could also be provided to participants of certain projects, such as the ones focused on alternative sources of income, where residents receive aid to create businesses and depend less on fishing as a source of income. These participants later become key members of the communities, sensitizing them and serving as a bridge between NGOs and the rest of the residents. Financial compensation was also mentioned by seven (26%) interviewees from São Tomé and six (29%) from Príncipe, and it could be given due to two reasons: for reporting illegal activities, whereby a portion of the fine goes back to the community, mentioned by four (15%) people in São Tomé and only one (5%)

in Príncipe, or for participating in an event, with three (11%) residents from São Tomé and five (24%) from Príncipe citing it. Regarding this, one NGO worker (P27) claimed: *“It’s the value (that communities receive) of the tourists’ visits to the turtles in Praia Grande and that value goes entirely to the communities. Not all the communities sign up, but the ones that do have some guidelines: they must help cleanup ghost nets on the shore and sea”*. Finally, transportation assistance, cited by five (19%) people in São Tomé and three (14%) in Príncipe, and training, with five people mentioning it in São Tomé (19%) and four (19%) in Príncipe, were also cited as examples, with one NGO worker (P21) saying: *“If we do a co-management assembly (regarding the MPAs), where different fishers from different communities come (...) they will only appear if there is a transportation allowance, food allowance and a compensation for the day not worked”*.

The participants pointed out both benefits and drawbacks of the supply of external aid, presented in Table 9. Overall, members from law enforcement and the government had the most positive views, with four (8%) from each group indicating benefits. However, in Príncipe, resource users (three (6%)) also had positive views, something that did not happen in São Tomé.

**Table 9.** Perceived benefits and drawbacks of supply of external aid in both islands (number of participants mentioning each type of consideration is mentioned below)

Benefits/ Drawbacks	Specific Benefits/Drawbacks	
	São Tomé (n=27)	Príncipe (n=21)
<b>Benefits</b>	Community involvement stimulant (15%; n=4)	Community involvement stimulant (43%; n=9) “I think they should receive something to stimulate them (the residents). That would help a lot.” [Law enforcement agent (P31)]
<b>Drawbacks</b>	Community dependence (11%; n=3)	Community dependence (24%; n=5) “That will become a vice and instead of people going with the goal to learn something from that event, they will only go because they will hand out money and that would not be advised” [NGO worker (P05)]
	Lack of security (4%; n=1) “Imagine there is a problem and there’s no more money... when there is no money to do that kind of job, there is confusion. The project before was buying turtles and when the money ran out, people started killing them again.” [Beach patroller (P17)]	Lack of security (5%; n=1)
	Inadequate approach (4%; n=1) “Both the government and the projects, instead of doing things as they are supposed to, they come here and they tell the fishers’ association to decide who should receive aid” [Resource user (P03)]	

### 3.5.4. Motivating forces for local participation in conservation-related enforcement

#### Intrinsic motivations

When it comes to what motivates community involvement, according to the respondents, intrinsic factors (behavior driven by internal satisfaction), shown in Table 10, were a big reason for the residents to get involved, with 35 (73%) of the interviewees from the islands referencing it, with a higher percentage of Príncipe residents mentioning them (81%; n=17) when compared to São Tomé's (67%; n=18).

In Príncipe, NGO workers were responsible for eight (17%) of the answers regarding intrinsic motivations, with the other groups (law enforcement agents, government workers, and resource users) all having three (6%) responses. When compared to São Tomé, the distribution of answers shifted, with five NGO workers (10%), eight (17%) law enforcement agents (due to the high number of beach patrollers interviewed), three government workers (6%) and two (4%) resource users.

#### Extrinsic motivations

Extrinsic factors (behavior driven by external rewards) were also mentioned as drivers for community involvement, with 34 (71%) of the interviewees from the islands referencing it, with, once again a higher proportion of Príncipe's residents (76%; n=16) mentioning them when compared to São Tomé's (67%; n=18).

In Príncipe, NGO workers were responsible for eight (17%) of the responses regarding extrinsic motivations, with law enforcement agents and government workers having three (6%) answers, and resource users two (4%). When compared to São Tomé, the distribution of answers remained similar (seven (15%) NGO workers, one (2%) government worker and two (4%) resource users) besides the nine (19%) responses from eight law enforcement agents (due to the high number of beach patrollers interviewed),

**Table 10.** Perceived motivations for residents to aid law enforcement in both islands (number of participants mentioning each type of consideration is mentioned below)

Main Motivation	Specific Motivation	
	São Tomé (n=27)	Príncipe (n=21)
Intrinsic Motivation (n=35)	Community sensitization (22%; n=6)	Community sensitization (33%; n=7) "It's because of the sensitization. If people are sensitized, they gain conscience and learn about it. They become more available to help." [NGO worker (P27)]
	Community relationships (22%; n=6) "It's (people giving information regarding turtles) because of friendship. In a community you cannot live alone, you need to have influence, friendship and try to make people understand, talk to them". [Beach patroller (P12)]	Community relationships (10%; n=2)
	Connection to the area (22%; n=6) "People get mad because they feel they are taking our heritage from us. Our sea." [Resource user (P03)]	Connection to the area (10%; n=2)

	Appreciation for nature (11%; n=3) “There are people that get involved because (...) they see the importance of protecting a turtle nest, of protecting turtles.” [NGO worker (P30)]	Appreciation for nature (14%; n=3)
	Love for conservation (19%; n=5) “The people that work with me have a lot of love for the project, because it is not easy to lose sleep.” [Beach patroller (P29)]	Love for conservation (5%; n=1)
		Personal factors (24%; n=5) “There are people that we almost don’t work with and they are super open. We talk to them and they accept it. It’s just personal factors.” [NGO worker (P25)]
		Feeling of recognition (10%; n=2) “We appeal a lot to the fact that there are species that only exist here and that specific pride.” [NGO worker (P19)]
	Community representation (4%; n=1) “I think that people like to be involved in an activity that values them. These people were elected by their own community, so they are representatives of their community.” [NGO worker (P23)]	
<b>Extrinsic Motivation</b>  (n=34)	Job opportunities (33%; n=9)	Job opportunities (48%, n=10) “The turtle is connected to tourism. It can be a source of income, so we present alternatives, and they make a lot of people want to protect it.” [NGO worker (P25)]
	Better environmental conditions (33%; n=9)	Better environmental conditions (33%; n=7) “People here want to protect the ocean because they see the resources are decreasing.” [Resource user (P28)]
	Supply of external aid (22%; n=6) “There is a cultural issue of receiving (...) They are very used to receiving and, to do something, they will want to receive something.” [NGO worker (P30)]	Supply of external aid (5%; n=1)
	Community investment (7%; n=2)	Community investment (5%; n=1) “There is a value that is what is generated by the turtle tours in Praia Grande and that value goes to the communities.” [NGO worker (P27)]

### 3.5.5 Reasons for non-involvement

Various reasons for non-involvement were given in the islands, with the most popular one being fear of repercussions, physical threats being a reality in these communities: ten (21%) of the interviewees cited it, five (19%) in São Tomé and five (24%) in Príncipe. Secondly, personal factors of the population, such as distrust of the government, laws, of the conservation programs or just personal belief were cited by eight (17%) of the participants, four (15%) residents from São Tomé and four (19%) from Príncipe. The lack of external aid, such as monetary compensation, was indicated by three (11%) interviewees from São Tomé and three (14%) from Príncipe, six (13%) in total, as a factor in non-involvement- if

there is no immediate gain, some people will not want to get involved. Lastly, lack of community organization (7%; n=2) and the relationships between community members (4%; n=1) also dissuade locals from helping law enforcement, although these were only cited by São Tomé's residents

### **3.5.6 Characterization of the groups involved**

In both islands, the interviewees claimed that most of the locals involved are ex-turtle hunters (17%; n=8), fishers and fish-sellers (17%; n=8): the first occupation indicated had four answers in both São Tomé (15%) and Príncipe (19%), while fishers and fish-sellers were mentioned by three (11%) participants in São Tomé and five (24%) in Príncipe. Regarding this, one NGO worker (P16) said: *"We have people on our team that were great turtle hunters and that nowadays are incredible conservation agents"* and another one (P10) also claimed: *"Automatically, the probability of them (people that patrol beaches) being fishers and fish-sellers is gigantic, because it is the main source of income in the island"*. When it came to age, both younger and older residents were mentioned by only one Príncipe participant each (5%) as being more involved sectors of society.

On the other hand, there are also groups that are perceived as more difficult to involve: fishers were the top answer when it came to difficulty in involvement, with eight (17%) participants, five (19%) in São Tomé and three (14%) in Príncipe claiming that they were the most difficult sector to engage with. Secondly, hunters were perceived by five (10%) interviewees, two (7%) in São Tomé and three (14%) in Príncipe as a challenging group to attract to conservation work. There were several groups that were only indicated by members of one island: fish sellers (7%; n=2), women, men, loggers, boat owners and poorer communities, all with just one (4%) participant mentioning them, were only indicated by São Tomé residents. Concerning Príncipe's respondents, they were the only ones citing the youth (14%; n=3), coalmen, underwater fishers and older generations, the last three being mentioned by one (5%) participant each.

Regarding community involvement, 15 of the participants (31%) claimed that the involvement occurred most through employment, with a higher percentage of answers from São Tomé (37%; n=10) when compared to Príncipe's (24%; n=5). Unlike São Tomé, Príncipe participants claimed that the involvement occurred most through volunteering, with six (29%) of its interviewees mentioning it. In total, 13 participants (27%) talked about volunteering as the main form of involvement, seven (26%) being from São Tomé. Four (8%) of the interviewees claimed both happened in equal measure, three (11%) being from São Tomé and one (5%) from Príncipe.

### **3.5.7 Formalization of local participation in conservation-related enforcement**

When asked about the status of formalization of volunteers in conservation-related enforcement, 31 (65%) of the islands' participants answered that there was no type of formalization for the people that perform these actions (not including the employed beach patrollers and data collectors, a group of people that, although not interviewed, were mentioned due to their task of collecting data from fishers regarding their work, as to be able to characterize the state of the ocean and aid in MPAs establishment, which do have a contract). Out of the 31, 15 (56%) were São Tomé's residents and 16 (76%) were from Príncipe. When it comes to the participants that answered positively, ten (37%) were from São Tomé, with the law enforcement agents being the majority of responses, with five (10%) of them, followed by NGO workers, with four responses (8%), government workers and resource users, both with one (2%) answer. Príncipe had five (24%) positive answers, with both NGO workers and law enforcement agents having two (4%) responses and one (2%) resource user also being represented. Of the ten (37%) participants in

São Tomé that reported there was some formality when it came to community involvement, five (10%) claimed that the type of formalization that existed was attendance lists to be able to assess the number of participants in public consultations, with one NGO worker (P21) claiming the following: “*In the case of the co-management assemblies, in the end, we pass around an attendance list*”. Only one participant claimed that they did not know the status of formalization: a NGO worker in São Tomé.

Various drawbacks and benefits of formalization (Table 11) were pointed out, such as making it easier to reward volunteers, mentioned mainly (10%; n=5) by beach patrollers. Regarding this topic, the questions asked to the interviewees differed from island to island. This explains the lack of opinions regarding this topic in the island of Príncipe. The reason for this incident was simply the lack of experience of the interviewer.

**Table 11.** Perceived benefits and drawbacks of the formalization of volunteer work in both islands (number of participants mentioning each type of consideration is mentioned below)

Benefits/ Drawbacks	Specific Benefits/Drawbacks	
	São Tomé (n=27)	Príncipe (n=21)
<b>Benefits</b>	Easier to reward volunteers (22%; n=6) “It would be beneficial because tomorrow, if a patroller leaves, there is a chance to employ that person.” [Beach patroller (P12)]	Easier to reward volunteers (5%; n=1)
	Safety for the parties involved (15%; n=4)	Safety for the parties involved (5%; n=1) “Locally, all the work we do is monitored by the work delegation (...) So there is documentation to clarify that someone is only doing volunteer work.” [NGO worker (P38)]
	Sense of responsibility (15%; n=4) “I think formalized is better because the community would feel more responsible.” [Law enforcement agent (P22)]	
	Aid in organization (11%; n=3) The formalization could lead to a bigger organization instead of everyone being disperse.” [Government worker (P24)]	
	Aid in data keeping (11%; n=3) It’s better to sign (participation sheets) so that we know how many people attend. “[Law enforcement agent (P39)]	
	Increased community acceptance (11%; n=3) “It (formalization) could be done. It provides a way for people to be more comfortable to collaborate with us.” [Beach patroller (P17)].	
	<b>Drawbacks</b>	Too much responsibility (11%; n=3)

Wrong impressions (7%; n=2)	
“I don’t think it would be a good idea because everyone wants a job. People would have the wrong impression due to the financial situation of the country. Everyone wants money.” [Law enforcement agent (P13)]	
Bureaucracy (4%; n=1)	
“I think it’s better if we leave it be. Let’s imagine: if that everyone that wants to get involved must sign something, that means the entire community will have to sign.” [Resource user (P33)].	
Community conflict (4%; n=1)	Community conflict (5%; n=1)
“If it’s formalized, it starts being a risk, because he (the citizen) is an identified agent.” [Government worker (P06)]	
	Exclusion of certain groups (5%; n=1)
	“But they (women in another country) did it voluntarily, otherwise their husbands would not have allowed them to do it. [NGO worker (P11)]

#### 4. Discussion

Community participation in conservation enforcement has been a topic that is increasingly considered as an aid for conservation efforts worldwide. Especially in low-income countries, where the cost of traditional law enforcement is sometimes too high, community participation in this sector provides a much-needed crutch. This study presents an overview of community participation in different aspects of law enforcement, with a characterization of their participation and of the law enforcement in São Tomé and Príncipe, highlighting the importance of involving locals in decision-making, of employing them and the difficulties when it comes to community involvement in this sector. This study shows that community involvement in law enforcement, even with the difficulties associated with working with communities, such as conflicts and distrust, is seen as beneficial by various groups of workers to the conservation scenario in São Tomé and Príncipe.

São Tomé and Príncipe has a long history of community involvement in law enforcement, starting in the 90s with marine turtle conservation (Ferreira-Airaud et al., 2022). As showed by the results, various interviewees, independent of the group, claim that involving the residents in conservation law enforcement is beneficial. With the main drivers of illegal activities being necessity due to poverty and culture/tradition, the fact that both turtle programs (Fundação Príncipe and Programa Tatô) focused on employing ex turtle-hunters, was key to the success of these conservation programs. In a country facing a lack of human resources in law enforcement, this approach increased the number of workers in this area, but also provided a safer source of income for the residents, promoted their sensitization and, by association, raised awareness within their communities. The efforts devoted to raising population awareness and interacting with society as whole, from activities in schools to community meetings, from using the TV, the radio and in-person talks, proved to be also imperative. This is especially relevant considering that one of the main motivations cited for community involvement in conservation law enforcement was the residents’ knowledge due to sensitization.

Considering the country’s strong dependence on fishing resources, NGOs found this factor the perfect opportunity to sensitize the residents, since marine turtles have a positive impact on fisheries (Bosch-Belmar et al., 2020; Hays et al., 2018). Furthermore, although São Tomé and Príncipe does not have a

tourism-based economy, it has been investing in this sector and has experienced an increase in visitors for the past years. This growth not only provides jobs for the residents (14,500 in 2017) (Da Costa Ribeiro & Wang, 2019), and income (e.g. tourists paying to watch turtles hatching), but also contributes to raise the communities' awareness of the natural world. São Tomé and Príncipe capitalizes on its rich natural heritage, such as the Príncipe UNESCO Biosphere Reserve (D'Almeida, 2025), to attract tourists interested in nature-based travelling (Viegas, 2025).

Thus, since residents perceive tourism as a source of income and a way to improve their socioeconomic condition, the same perspective extends to the species, nature and protected areas that turn tourism into a component of the economy. Therefore, a large part of the population expresses a will to protect and preserve natural resources and NGOs capitalize on this fact to further promote sensitization.

The type of approach used in São Tomé and Príncipe is not unique, with other cases around the world, such as the TAMAR project in Brazil, where members of local communities are also employed to monitor turtle nests/impede hunting, where there is a continuous environmental education with the communities and a focus on the connection between turtles and ecotourism (Vieitas et al., 1999). This project has seen success due to its involvement with local communities, something shared with the projects in São Tomé and Príncipe.

Although this approach has shown to be successful, the insufficient funding for the NGOs that promote these projects leads to difficulties concerning activities, more employment and better salaries. Furthermore, the lack of security and community conflicts mentioned by several interviewees may be impacting the community involvement, since residents fear getting involved more directly due to a fear of repercussions. Finally, and possibly the most important barrier, the economic conditions of the country impact all levels of community involvement. STP has the second smallest economy in Africa, so its people are highly dependent on environmental resources. Furthermore, two-thirds of the population live in poverty and 47% in extreme poverty (Instituto Nacional de Estatística, 2020).

Regarding the MPA's, community involvement related to enforcement has been described in other areas, such as in The Lamlash Bay no-take zone, in Scotland, where to aid enforcement, residents have guides to be able to report infringements in the MPA (COAST, 2025a), participate in the decision-making process and raise awareness (COAST, 2025b). Furthermore, studies from MPAs in the Philippines demonstrated that approaches that provide community participatory mechanisms in MPA management lead to a better perception of these areas by residents (Twichell et al., 2018).

Thus, in STP, a similar approach is being used, with a focus on community involvement in conservation law enforcement. Just like the case with the turtles, this approach is useful due to the fact it targets not only conservation, but also the residents' life and infrastructural problems, such as the lack of law enforcement. For example, due to the country's high dependency on fishing as a source of income, it is harder for the population to approve it, since it restricts their job. Thus, the MPAs project has focused on alternative sources of income for the locals: fishers and fish sellers have been in projects related to funding new businesses, as a way to make the population less dependent on fishing. If their model business won, their project would be funded by the NGO's responsible (Fundação Príncipe and Marapa). Although this is not a job directly related to conservation law enforcement, residents still end up being sensitized and are important for the sensitization of their own communities regarding MPAs. Furthermore, data collectors have also been employed to provide important information regarding the condition of the oceans, which is imperative to understand the impact of the MPAs, and to alleviate the economic stress for the residents' chosen for these jobs. It is important not to disregard the possibility of employing fishers for sea patrolling, as this is an opportunity to engage with local communities in the same way as previous successful initiatives.

Unlike the case of the marine turtles, the interviewees focused much more on the involvement of the community in decision-making, with the fishers and fish sellers being responsible for choosing the areas to be soon protected. This provided not only a place for raising awareness, with meetings similar to the ones regarding the turtles, but it added the component of direct involvement in decision-making, which made residents more connected to the project.

The same barriers present in the marine turtles project are present in the MPAs project, with the added component that these areas have a larger impact on the fishers' livelihoods, which can lead to more negative perceptions (Mizrahi et al., 2020; Westlund et al., 2017). As stated before, the MPAs project focuses on creating alternative sources of income to overcome this difficulty and to benefit everyone involved.

The information gathered by these interviews would not have been possible without the framework created by Sharkey et al (2024), which provides a method to not only garner information about community participation in conservation law enforcement, but also to compare it with other cases. In this study, the framework dimensions were used as they were originally established by Sharkey et al. (2024), offering an ample view of the context in STP. However, extra information still needed to be gathered regarding challenges for law enforcement (Moreto & Charlton, 2019), drivers (Iacarella et al., 2021) and deterrents (Battista et al., 2018) of illegal activities. These aspects, although not directly related to community participation in conservation law enforcement, provide an important view of the country's background, which in turn impact the topic of the framework and its success. Thus, additional dimensions in the framework regarding drivers and deterrents of illegal activities and challenges for law enforcement might be added, to provide a more complete overview of the conservation initiatives, why certain approaches were chosen and why they were successful or not.

The sampling method- snowball sampling- was also indispensable to the success of the research: most of the population in the country does not have the required knowledge to be able to answer to the questions posed so relying on the social networks of key informants was imperative to garner participants. Still, the fact that this sampling method relies on a referral process makes it dependent on a selection bias, which means the research can be skewed from the beginning (Parker et al., 2020). In this case, the fact that the initial participants were part of NGOs led to most of the interviewees being either employed or related to them. This means that there is a likelihood that they harbored positive opinions regarding conservation already and their connection with the organizations could inhibit them from being open about their opinions.

The fact that STP is a SIDS is extremely influential for the success or failure of these initiatives, since it suffers from specific conditions other countries probably don't have to consider: small area, even more so when considering that a large portion is considered a protected area, distance from other countries, limited resources, lack of capacity, exposure to natural disasters, vulnerability to exogenous shocks, demonstrated by a higher volatility when it comes to per capita GDP (Atkins, 2000; Da Cruz, 2020; Leandro & Lobo, 2020; Silveira 2021). All these factors affect the community involvement in conservation law enforcement in various areas: as stated before, the dependency of the residents on natural resources is high, as they use natural resources for income, sustenance, building, etc. (Burt et al., 2021; Burt et al. 2023; Nuno et al., 2024) which can make it harder to raise awareness, due to a perceived threat of livelihoods (Mizrahi et al., 2020). There is a need to focus on how these initiatives can either decrease their reliance on them or how they can improve the condition of the resources (e.g. MPAs can better the condition of fisheries, which makes residents want to participate). Furthermore, the limited resources and lack of capacity provide a barrier to the implementation of certain projects, which makes community involvement a good way to counter the lacking environmental conservation capacity (McConney et al., 2014).

#### **4.1 Future recommendations**

Although community participation in law enforcement has been increasing since the sensitization process began, there are still ways to improve it and law enforcement in the country. The following recommendations are based on the interviewing process, with the interviewees having mentioned them as a way of bettering the functioning of law enforcement in the country and to improve community involvement in the sector:

##### **Law enforcement forces' recommendations:**

1. State forces, such as the police or the forest rangers, could try to employ agents to work in their own areas of residence, instead of a nationwide public procurement. This was the approach used by the NGO's for the beach patrollers' initiative, and it seems to have worked due to tight-knit nature of the communities.
2. Technical training and seminars given to law enforcement agencies should either happen on both islands, or the agents from Príncipe should receive transportation aid to be able to attend these events. This would create an evenness in knowledge on both islands.
3. Beach patrollers, forest rangers and other environmental patrollers should have access to self-defense training or a form of direct protection. Although it would provide protection, I would not advise guns for the state agencies, since a lot of training is needed, and when dealing with volatile situations in the communities, this could result in an excess of force and a higher rift between communities and law enforcement.
4. All enforcement authorities should have a thorough description of what their job entails, to avoid incomprehension.
5. State agencies, like the directorate of fisheries and the directorate of forests, should try to have smaller offices in key locations, especially in São Tomé. The centralization of services makes it hard for the agents to arrive on time when a tip is given. Spreading out the location of services would help with this problem.
6. Provide training for law enforcement when it comes to environmental laws and illegal activities.

##### **Community involvement recommendations**

7. Instead of providing money for volunteers, supplying transportation/food aid or materials, like phone balance so people can give more tips easily.
8. Sea patrollers, such as fishers that detect illegal activity, could be implemented. If there is a lack of funding to employ people, similar to beach patrollers, interested fishers could do this task passively: while they fish (income-source) they could also collect this data.
9. Although communities are supposed to be involved in decision-making, frequently this work is not done thoroughly: an inspector should be tasked with assessing if the one responsible for consulting the communities did their job accordingly, and report them if otherwise.
10. Develop alternative sources of income programs for the communities, either by training the participants regarding teamwork, or by focusing on individual alternative sources of income, since the population is characterized by being individualistic, so when money is involved a lot of conflict ensues.

##### **Resources recommendations:**

11. Resources, especially a boat for the Port Authority and the Navy, and a motorcycle or all-terrain truck for the police, should be acquired, so that agents can do their work more efficiently

12. Investment in the training of technicians, such as mechanics that can fix the boats when they break down, is needed, since even if the state forces and NGO's have the materials needed, a lot of times there are no specialized technicians that can fix them when they break, especially in the island of Príncipe.

**Legal recommendations:**

13. Work on clarifying the existent laws, such as the fining process, so law enforcement agents can apply the law.
14. Fill the gaps in the existent laws, as to make them applicable by law enforcement agents.

## **5. Conclusion**

In a world where conservation is focused on protecting biodiversity and the environment, critical analyses of the conservation approaches used are needed. Without them, a gap in knowledge is formed: What makes certain initiatives work? What makes others a failure? These analyses enable us to compare case studies around the world, to be aware of the situational clues which influence certain outcomes, such as the influence of being a SIDS when involving communities in law enforcement conservation or how poverty can shape people's motivations. Without them, our focus on conservation suffers: money, time and effort spent on projects that, if analyzed and compared with others around the world, can be improved and have better chances of success.

To conclude, using social sciences to deepen our knowledge of the setting in which we want to develop initiatives is imperative: conservation is impossible without communities, without people. If we ignore this component, we are bound to fail.

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## 7. Supplementary material

**Table S1.** Thematic analysis framework used to code qualitative data regarding characterization of the country, law enforcement and communities, including description of code and sub-codes and a summary of findings against each code

<b>Code</b>	<b>Sub-code</b>	<b>Description</b>	<b>Summary of findings</b>
<b>Country context</b>	Socio-economical context	All descriptions given about the communities, the culture and the economic state of the country. This code was split into different categories such as size of the island, type of culture, perceived anonymity, community perception and economic state.	The most used descriptor of the country was small, due to the size of it impacting community participation and anonymity, which was seen as non-existent. Participants described the culture as individualistic, although claiming the communities as tight-knit. The communities/the country were also described as having an abundance of family ties, leading to inaction by the residents. Poverty was also mentioned as an influential aspect of the country.
	Fishing culture	Descriptions about how the sea is used as a source of income and how the decrease in fisheries has been perceived/ what is causing it.	Participants claim the residents are highly dependent on the ocean as a source of income and that less fish is being caught. The reasons given for this are the increase in fishers, the higher number of foreign fleets fishing in STP, the bad fishing practices used and the more advanced ones.
<b>Awareness of conservation-related laws, regulations and key actors</b>	Awareness of rules	Descriptions about the residents' awareness of all rules related to the environment, with different categories such as taxa-specific laws, fishing practices, forestry practices, protected areas, building restrictions, provision of permits, use of chemicals, hunting, soil practices and illegal trash deposits	Participants showed knowledge regarding laws, specifically when it comes to taxa-specific restrictions, such as the prohibition of turtle hunting, and the prohibition of certain fishing practices, especially when it comes to mesh restrictions and fishing in bay areas. Interviewees also showed familiarity with the MPAs designation process.
	Important intervenients	All the descriptions regarding institutions that intervened when it came to conservation or conservation law enforcement	Interviewees mentioned a vast number of institutions, from NGOs to governmental agencies, with the most mentioned being the Port Authority and the Directorate of Fisheries.
	Perception about laws and law enforcement	Under this category, data regarding the resource users' perception about the laws and the law enforcement agents was divided into positive and negative for each. Overall perception of the agents was also a category.	Resource users viewed the environmental laws as just, with most of them also seeing the law enforcement agents positively. However, a few participants viewed the agents as inadequate.
<b>Challenges for law enforcement</b>	Logistical challenges	This category was sub-divided into various subcategories such as lack of resources, lack of qualified personnel, lack of funding, lack of training, lack of material maintenance, personnel management, money management and services centralization.	Logistical challenges were the most cited ones by participants, with a heavy focus on the lack of resources, lack of personnel and of funding.
	Professional challenges	Descriptions about challenges related to work, such as security, low salaries, work overload and difficult working hours.	Interviewees mentioned lack of safety the most when it comes to professional challenges, with stories of aggression and threats being common, more so in São

			Tomé. Beach patrollers especially complained about low salaries.
	Legal challenges	Under this category, the data was divided into lack of law applicability, inexistence of laws to go after certain harmful actions and the incomprehension of laws.	Participants viewed lack of law applicability as the main legal challenge, with this problem being for several reasons, such as gaps in the law and inefficient law enforcement. This category was mostly mentioned by São Tomé residents.
	Social challenges	Descriptions of challenges related to people and communities were put under this category, with the data being divided in community resistance, locals' environmental awareness, tourists' environmental awareness, populations' availability and population's encroachment.	Interviewees cited community resistance the most out of the social challenges mentioned, followed by limited environmental awareness. The tourists' environmental awareness was only referenced by participants from São Tomé.
	Governance challenges	Descriptions of problems with the function of the government were put under this code, with it being divided in dependence on external agents, government's lack of engagement, poor coordination between sectors responsible for enforcement, high personnel turnover, corruption and absence of guidelines.	Dependence on external agents was the most mentioned challenge, due to its influence on funding and resources, followed by the lack of desire of the government to engage in conservation matters and poor coordination between sectors, which impacts enforcement, cited only by NGO workers. Corruption and absence of guidelines were only mentioned by residents from São Tomé and Príncipe, respectively.
<b>Drivers of illegal activity</b>	Economic drivers	Descriptions of economic factors that lead to the population engaging in illegal activities. This category was divided into necessity due to poverty and opportunism.	Economic drivers were the most mentioned out of the three, with necessity due to poverty being the main reason cited, due to the economic context of the country. Opportunism was mainly cited by residents of São Tomé.
	Social drivers	Descriptions of social factors that lead to the population committing illegal actions. Under this category, culture /tradition, lack of knowledge, personality and feeling of exclusion were the divisions chosen.	Culture/tradition was the most cited social driver, followed by a lack of knowledge, which could be of laws, mostly mentioned in São Tomé, or of the importance of conservation, mostly mentioned in Príncipe. The personality of residents was only a factor cited in São Tomé.
	Infrastructural drivers	Descriptions of infrastructural drivers that lead to the residents engaging in illegal activities. Two subcategories were defined: lack of law enforcement and accidents due to fishing gear.	Institutional drivers were the least mentioned ones, with lack of law enforcement being the most cited subcategory. Accidents due to fishing gear were only mentioned by resource users from Príncipe.
<b>Deterrents of illegal activity</b>	Economic deterrents	Descriptions of economic deterrents that prevent the population from engaging in illegal activities. This category was divided into alternative sources of income, reparations for damage, alternative sources of resources, investment in communities and provision of better gear.	An alternative source of income was the most cited deterrent, mostly by NGO workers. Reparations for damage, such as paying for a fishing line if a turtle ate it, was only mentioned by beach patrollers from São Tomé. An alternative source of resource for the communities

			was cited only by government and NGO workers, investment in communities was only mentioned in São Tomé and provision of better gear in Príncipe.
	Educational deterrents	Descriptions of educational deterrents that prevent the population from engaging in illegal activities. This category only had environmental awareness as subcategory.	Environmental awareness was the most cited deterrent of all, with a majority of the participants claiming sensitization is the reason why locals don't engage in illegal activities. A higher proportion of Príncipe residents mentioned this than São Tomé's.
	Institutional deterrents	Descriptions of institutional deterrents that prevent the population from engaging in illegal activities. This category was divided into efficient law enforcement, better legislation and the establishment of MPAs	Institutional deterrents were the least mentioned of all, with efficient law enforcement being the most cited one in this category, followed by better legislation.

**Table S2.** Thematic analysis framework used to code qualitative data based on the community involvement related to conservation law enforcement including description of code and sub-codes and a summary of findings against each code

<b>Code</b>	<b>Sub-code</b>	<b>Description</b>	<b>Summary of findings</b>
<b>Involvement of residents in different points of the enforcement chain</b>	Types of involvement	Under this category, the data was divided into different types of involvement in the enforcement chain: community employed for patrolling; residents raise awareness; social sanctioning; community cleanups; community patrols with law enforcement; on the spot fining; community members serving as witnesses; residents confiscating valuable equipment; residents providing evidence and residents fining infractors.	The most mentioned types of involvement were residents raising awareness, community cleanups and residents providing evidence. On the other hand, the least mentioned types of involvement were residents fining infractors, community members serving as witnesses and social sanctioning.
	Perception of involvement	Descriptions of the participants' views of the involvement of residents, divided by beneficial and problematic. Under the beneficial descriptor, there were sub-categories: law enforcement aid; promotion of awareness raising in the communities; help achieving ecological outcomes; more in-depth information; more respect; more job opportunities; closer relationship with law enforcement and more community independence. Under the problematic descriptor, there were also sub-categories: community conflicts; lack of training; less serious law; clashes with law enforcement; misguided hate towards NGOs; the abuse of power by communities; the lack of long-term employment and the instability of community involvement.	All participants mentioned benefits, with the most mentioned being the fact that the residents' involvement aids in law enforcement, promotes awareness in the communities and helps achieve ecological outcomes. Problems were also pointed out, especially the fact it could lead to community conflicts, the lack of training the residents have to get involved and the fact that the involvement could lead to locals perceiving the law as less serious.
<b>Local participation in decision-making related to law enforcement</b>	Types of participation	Under this category, data was simply divided into if participants claimed local participation in decision-making happened or not.	Most of the participants claimed the locals were involved in decision-making related to law enforcement
	Perception about local participation in decision-making	Description of the benefits and the drawbacks of local participation in decision-making related to law enforcement pointed out by the participants. The benefits mentioned were higher adherence to environmental laws;	All participants viewed local participation positively, with the most mentioned benefits being the higher adherence to environmental laws and the wider range of opinions.

		wider range of opinions; more informed communities and opportunities for residents. The drawbacks cited were insufficient work to involve the residents; conflict between communities; lack of representativity and a more complicated procedure.	Problems were also pointed out, especially the fact the responsible a lot of the times did not do enough work to involve the residents and the fact it could lead to community conflicts,
<b>Supply of external aid</b>	Types of external aid provided	Under this category, the data was divided into different types of external aid provided: materials, financial compensation, food allowance, training and transportation aid.	Most of the participants claimed external aid was provided, with the most common example being financial compensation, followed by materials and food allowance.
	Perception about the supply of external aid	Description of the benefits and the drawbacks of the supply of external aid pointed out by the participants. The only benefit mentioned was the fact it was a community involvement stimulant. The drawbacks cited were the fact it created community dependence, there could be a lack of security/stability related to it and it could be an inadequate approach.	The only benefit mentioned was the fact it could stimulate community involvement, while the main problem pointed out was that it could lead to community dependence.
<b>Motivating forces for local participation in conservation related enforcement</b>	Intrinsic motivations	Description of the intrinsic motivations mentioned in the data. Participants mentioned community sensitization, community relationships, personal factors, appreciation for nature, feeling of recognition, connection to the area, love for conservation and community representation.	Intrinsic motivations were widely mentioned, with the ones cited the most being community sensitization, community relationships and connection to the area.
	Extrinsic motivations	Description of the extrinsic motivations mentioned in the data. Participants mentioned job opportunities, better environmental conditions, supply of external aid and community investment.	Extrinsic motivations were widely mentioned, with the one cited the most being the job opportunities for residents
<b>Reasons for non-involvement</b>		Under this category, the participants' reasons for residents to not get involved were described. The data was divided in fear of repercussions, personal factors, lack of external aid, lack of community organization and community relationships.	The main reason for non-involvement cited was the fear of repercussions, followed by personal factors and lack of external aid.
<b>Characterization of the groups involved</b>	Groups involved	Description of the groups involved in conservation law enforcement, such as ex turtle hunters, fishers and fish-sellers, younger and older residents.	The main groups involved according to the residents were ex-turtle hunters, fishers and fish-sellers
	Groups not involved	Description of the groups difficult to involve in conservation law enforcement, such as fishers, hunters, fish-sellers, women, men loggers, boat owners, poorer communities, the youth, coalmen, underwater fishers and older generations	According to the participants, the most difficult groups to involve were fishers and hunters.
	Type of involvement	Description of the type of involvement by the residents, with the data being divided in employment, volunteering and both.	Mos of the participants claimed that community involvement happened mostly through employment
<b>Formalization of local participation in conservation-related enforcement</b>	Types of formalization	Under this category, data was simply divided into if participants claimed local participation was formalized or not.	Most participants claimed there was no type of formalization,
	Perception about the formalization of local participation	Description of the benefits and the drawbacks of formalization pointed out by the participants. The benefits mentioned were the fact it makes it easier to reward volunteers, more safety for the parties involved, more sense of responsibility, it is an aid in organization, an aid in data	The main benefits cited were the fact formalization makes it easier for residents to get rewarded and it helps with safety for the parties involved. The drawbacks mentioned the most were that it could be too

keeping and leads to a higher community acceptance. The drawbacks cited were the fact it could be too much responsibility, it could lead to wrong impressions, the bureaucracy involved, it can lead to community conflicts and it can result in the exclusion of certain groups	much responsibility, it could lead to wrong impressions and to community conflict.
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**Annex 1.** Interview scripts used for the different groups ( enforcement agents, NGO members, resource users, government workers)

### Introduction

Good morning. My name is Joana Casaca, and I would like to interview you about community participation in conservation projects. In particular, I would like to understand how environmental rules and laws are enforced, the related challenges, and how community involvement in this type of action takes place.

I am a student at the Faculty of Sciences of the University of Lisbon, and these interviews are part of my master's thesis, supervised by Dr. Ana Nuno of the Faculty of Social Sciences and Humanities of the Universidade Nova de Lisboa and Dr. Alexandra Marçal Correia of the Faculty of Sciences of the University of Lisbon. I am conducting this study in collaboration with the Príncipe Foundation (in Príncipe) and the Tatô Program (in São Tomé). My study is funded by the Bertarelli Foundation.

This project aims to understand how the use of community participation in conservation projects in São Tomé and Príncipe can promote legal compliance. In this study, I will analyze current and potential resident contributions to oversight, explore challenges and opportunities in this area, and provide recommendations on how to promote resident engagement in this area.

To proceed with the interviews, you must provide certain information:

- o The interviews will be recorded manually and, if authorized, the audio will be recorded.
- o I will never write your name and will use "codes" to prevent anyone from knowing who said what.
- o Written notes and audio files will be destroyed after transcription, and only those directly involved in the project will read the recorded information.
- o The data resulting from the interviews will be used solely for research purposes, in my master's thesis, and in scientific and dissemination communications and publications resulting from the research, which will be publicly available in print and/or online.
- o If you wish to terminate this interview and withdraw your consent before the end of this interview, you are free to do so without any consequences.
- o Your participation does not involve any direct benefit or reward. Knowing this information, are you willing to participate in the interviews? And do you agree to be recorded?

I really want to thank you for agreeing to participate, and if you have any questions, please don't hesitate to ask. You can also contact me at (+351) 910846392 or fc56152@alunos.fc.ul.pt. Regarding data protection, you can contact the Data Protection Officer at NOVA University Lisbon at dpo@unl.pt or the National Personal Data Protection Agency of São Tomé and Príncipe at (+239) 9858700 or geral@anpdp.st.

### Section 1 - Enforcement Agents

This section should be used for interviews with agents officially responsible for enforcement (e.g., representatives of the coast guard, police, forest rangers) and other individuals (including NGO staff members) who monitor (un)sustainable practices in conservation projects (e.g., sea rangers).

- Island:

- Interview Date:

- Start Time:
- Age:
- Gender:
- Nationality:

1. Can you tell me a little about your job? For example, how long have you been in this role? And what tasks do you perform daily in your job? In addition to this job, do you do any other activities to generate income? And what did you do before this job?

2. In your job, what types of behaviors/uses of natural resources or natural areas are monitored or monitored? What rules and laws associated with these resources or natural areas do you try to enforce (e.g., measures associated with prohibitions or defining criteria for sustainable use)? [If the interviewee is involved in activities related to marine resources, ask specifically about any connection to initiatives related to sea turtles (if not mentioned)]

3. In your opinion, what are the main challenges related to this oversight or monitoring? And what would you do to address these difficulties? [If the interviewee is involved in activities related to marine resources, ask specifically about any connection to initiatives related to sea turtles (if not mentioned)]

4. [Ask only if working conditions are NOT mentioned above :)] Regarding your occupation, do you think there is anything that is needed to improve your working conditions? For example, what difficulties do you experience (e.g., insecurity, instability?) and how could they be overcome?

5. In your opinion, what are the main reasons that lead residents to engage in behaviors that violate the rules/laws related to resources or natural areas? And beyond enforcement, how could people be encouraged to stop engaging in these behaviors? [If interviewed carries out activities related to marine resources, ask specifically about any connection with initiatives related to sea turtles (if not mentioned)]

#### **A) Resident Involvement at Different Points of the Enforcement System**

6. To enforce rules and laws related to natural resources, several steps are necessary (e.g., detecting noncompliance, seizing, prosecuting, etc.). In your experience, are residents of São Tomé/Príncipe involved in any of these steps? [If the interviewee is involved in marine resource-related activities, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

7. Now I will read some examples and would like to know if they currently exist or have ever existed in São Tomé/Príncipe [for each example listed below, record whether they existed in the past/exist now/never existed]:

- a) members of communities or local groups are hired to conduct patrols and report behavior that violates the rules;
  - b) community members dissuade others from engaging in behavior that violates the rules;
  - c) local residents apply social sanctions (e.g., shaming), and the identified offender is not arrested;
  - (d) local residents mitigate risks to wildlife by removing threats, such as illegal fishing gear;
  - (e) community representatives conduct patrols in collaboration with rangers who have the authority to make an arrest;
  - (f) an offender is fined on the spot and does not need to go to court;
  - (g) a local resident serves as a witness in court;
  - (h) local residents confiscate valuable equipment (e.g., illegal logging machinery) during patrols, which eliminates a threat and constitutes part of a sanction;
  - (i) evidence provided by a local resident helps convict an offender;
  - (j) community members sanction a convicted offender (e.g., by imposing a monetary fine).
8. [Ask only if the interviewee carries out activities related to marine resources and did not mention examples related

to sea turtles:] Are you aware of any specific cases of these examples related to compliance with rules/laws regarding sea turtles in São Tomé/Príncipe? If so, can you tell me a little about them?

9. [Ask only if, in question 7, the interviewee said there was some type of community involvement] Based on the list of previous examples that exist in the present or past, do you have any experiences you would like to share about community involvement in these actions? For example, some things that went well/failed? And some advantages or problems of using these approaches with community involvement? For example, do you see any improvement in your work or in people's behavior because of these approaches?

10. Based on the list of previous examples that do NOT exist in the past or present, do you think there are any measures that should be used in São Tomé/Príncipe to involve people in steps related to compliance with rules and laws related to natural resources? What might be the challenges or opportunities of trying to use these new measures? For example, do you think these approaches would change your work or people's behavior? [If interviewee works with marine resources, ask specifically about possible application in initiatives related to sea turtles and marine protected areas (if not mentioned)]

### **B) Nature of local participation in decision-making**

11. Do residents of local communities help in any way to make decisions about how rules and laws related to natural resources are made or implemented in São Tomé/Príncipe (e.g., deciding where patrols are conducted, deciding what penalties to apply, or what rules to create)?

a. [If interviewee said YES, ask:] Can you tell me a little about this and the benefits or problems of using this approach? [If interviewee works with marine resources, ask specifically about initiatives related to sea turtles and marine protected areas (if not mentioned)]

b. [If interviewee said NO, ask:] What might be the challenges or opportunities of doing this? For example, do you think these approaches would change your work or people's behavior? [If interviewee works with marine resources, ask specifically about possible application to initiatives related to sea turtles and marine protected areas (if not mentioned)]

### **C) Type of External Support Provided**

12. [Ask only if, in question 7, the interviewee said there was some type of community involvement:] Do residents of local communities receive any external support (e.g., materials, money, training, etc.) for their involvement in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? Generally, do they do this on a voluntary basis, or are they employed to be involved? [If the interviewee carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

13. [Ask only if, in question 7, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think they should receive some external support (e.g., materials, money, training, etc.)? In general, do you think they should do this on a voluntary basis or be employed to be involved?

### **D) Motivating Forces for Local Participation**

14. [Ask only if, in question 7, the interviewee said there was some type of community involvement] In your opinion, what are the reasons that lead residents of local communities to want to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? [If the interviewee carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

15. [Ask only if, in question 7, the interviewee said there was NO community involvement] In your opinion, what are the reasons that lead residents of local communities NOT to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? And what factors can encourage this involvement?

## **E) Degree of formalization of local participation**

16. [Ask only if, in question 7, the interviewee said there was some type of community involvement] Do residents of local communities who choose to engage in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe have a contract, agreement, or other type of document outlining their duties and responsibilities? Or do they do this informally? Can you tell me a little about this and the benefits or drawbacks of using these approaches? [If the interviewee engages in activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

17. [Ask only if, in question 7, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think there should be a contract, agreement, or other type of document outlining their duties and responsibilities? Or should they do this informally? What might be the challenges or opportunities of doing this?

18. Thank you so much for your time! Do you have anything else to say about these topics?

19. Do you have any recommendations for other people I should interview to discuss these topics?

End time:

## **Section 2 - NGO Members**

This section should be used for interviews with staff members of non-governmental organizations involved in natural resource management and biodiversity conservation activities in São Tomé and Príncipe (particularly activities related to sea turtles, marine protected areas, and other natural area protection interventions, such as nature reserves and parks). If the interviewee is directly involved in monitoring (un)sustainable practices in conservation projects (e.g., sea rangers), section 1 of this guide should be used.

- Island:

- Interview Date:

- Start Time:

- Age:

- Gender:

- Nationality:

1. Can you tell me a little about your occupation? For example, how long have you been in this role? And how does your occupation relate to sea turtles, marine protected areas, and other natural area protection interventions, such as nature reserves and the natural park in São Tomé and Príncipe?

2. In your organization/project, what types of behaviors/uses of natural resources or natural areas are monitored or monitored? And what rules associated with these resources or natural areas do you try to enforce (e.g., measures associated with prohibitions or the definition of criteria for sustainable use)? [If the interviewee or organization carries out activities related to marine resources, ask specifically about any connection to initiatives related to sea turtles and marine protected areas (if not mentioned)]?

3. In São Tomé/Príncipe, what other interventions and institutions are associated with the monitoring or supervision of these resources or natural areas? [Ask specifically about any connection to initiatives related to sea turtles (if not mentioned)]

4. In your opinion, what are the main challenges related to this monitoring or supervision (performed by your organization or others)? And what would you do to address these challenges? [If the interviewee or organization carries out activities related to marine resources, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

5. In your opinion, what are the main reasons residents engage in behaviors that violate the rules related to natural resources or areas? And beyond enforcement, how could people be encouraged to stop these behaviors? [If the interviewee or organization carries out activities related to marine resources, ask specifically about sea turtle initiatives (if not mentioned)]

#### **A) Resident Involvement at Different Points of the Enforcement System**

6. To enforce rules and laws related to natural resources, there are several steps (e.g., detecting non-compliance, seizing, prosecuting, etc.). In your experience, are residents of São Tomé/Príncipe involved in any of these steps? [If the interviewee or organization carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

7. Now I will read some examples and would like to know if they currently exist or have ever existed in São Tomé/Príncipe [for each example listed below, record whether they existed in the past/exist now/never existed]:

a) Members of local community groups are hired to conduct patrols and report behavior that violates the rules;

b) Community members dissuade others from engaging in behavior that violates the rules;

c) Local residents apply social sanctions (e.g., shaming), and the identified violator is not arrested;

d) Local residents mitigate risks to wildlife by removing threats, such as illegal fishing gear;

e) Community representatives conduct patrols in collaboration with rangers who have the authority to make an arrest;

f) A violator is fined on the spot and does not need to go to court;

g) a local resident serves as a witness in court;

h) local residents confiscate valuable equipment (e.g., illegal logging machinery) during patrols, which eliminates a threat and constitutes part of a sanction;

i) evidence provided by a local resident helps convict an offender;

j) community members sanction a convicted offender (e.g., by imposing a monetary fine).

8. [Ask only if the interviewee or organization carries out activities related to marine resources and has not mentioned examples related to enforcement of rules related to sea turtles:] Are you aware of any specific cases of these examples related to enforcement of rules/laws regarding sea turtles in São Tomé/Príncipe? If so, can you tell me a little about it?

9. [Ask only if, in question 7, the interviewee said there was some type of community involvement] Based on the list of previous examples that exist in the present or past, do you have any experiences you would like to share about community involvement in these actions? For example, some things that went well or poorly? And some advantages or problems of using these approaches with community involvement? For example, do you see any improvements in your work or in people's behavior because of these approaches?

10. Based on the list of previous examples that do NOT exist in the past or present, do you think there are any measures that should be used in São Tomé/Príncipe to involve people in steps related to compliance with rules and laws related to natural resources? What might be the challenges or

opportunities of trying to use these new measures? For example, do you think these approaches would change your work or people's behavior? [If the interviewee or organization carries out activities related to marine resources, ask specifically about possible application in initiatives related to sea turtles and marine protected areas (if not mentioned)]

11. [Ask only if, in question 7, the interviewee said there was some type of community involvement] Why did you start trying to involve residents in the inspection or monitoring of rules and laws related to natural resources? And how did you manage to promote these initiatives in the communities?

12. [Ask only if, in question 7, the interviewee said there was some type of community involvement] What were/are the occupations of the residents involved in the inspection or monitoring of rules and laws related to natural resources? Has there been any change in occupation since residents started getting involved?

13. [Ask only if, in question 7, the interviewee said there was some type of community involvement] Based on your experience, do you think there are groups in the communities that are more difficult to involve in initiatives related to the enforcement or monitoring of rules and laws related to natural resources? How have they tried to overcome this challenge?

## **B) Nature of local participation in decision-making**

14. Do residents of local communities help in any way to make decisions about how rules and laws related to natural resources are made or implemented in São Tomé/Príncipe (e.g., deciding where patrols are conducted, deciding what penalties to apply, or what rules to create)?

a. [If interviewee said YES, ask:] Can you tell me a little about this and the benefits or problems of using this approach? [If interviewee or organization carries out activities related to marine resources, ask specifically about initiatives related to sea turtles and marine protected areas (if not mentioned)]

b. [If interviewee said NO, ask:] What might be the challenges or opportunities of doing this? For example, do you think these approaches would change your work or people's behavior? [If interviewee or organization does activities related to marine resources, ask specifically about possible application to initiatives related to sea turtles and marine protected areas (if not mentioned)]

## **C) Type of External Support Provided**

15. [Ask only if, in question 7, the interviewee said there was some type of community involvement:] Do residents of local communities receive any external support (e.g., materials, money, training, etc.) for their involvement in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? In general, do they do this on a voluntary basis, or are they employed to be involved? [If the interviewee or organization carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

16. [Ask only if, in question 7, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think they should receive some external support (e.g., materials, money, training, etc.)? In general, do you think they should do this on a voluntary basis or be employed to be involved?

## **D) Motivating Forces for Local Participation**

17. [Ask only if, in question 7, the interviewee said there was some type of community involvement] In your opinion, what are the reasons that lead residents of local communities to want to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? [If the interviewee carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

18. [Ask only if, in question 7, the interviewee said there was NO community involvement] In your opinion, what are the reasons that lead residents of local communities NOT to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? And what factors can encourage this involvement?

### **E) Degree of formalization of local participation**

19. [Ask only if, in question 7, the interviewee said there was some type of community involvement] Do residents of local communities who choose to engage in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe have a contract, agreement, or other type of document outlining their duties and responsibilities? Or do they do this informally? Can you tell me a little about this and the benefits or drawbacks of using these approaches? [If the interviewee engages in activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

20. [Ask only if, in question 7, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think there should be a contract, agreement, or other type of document outlining their duties and responsibilities? Or should they do this informally? What might be the challenges or opportunities of doing this?

21. Thank you so much for your time! Do you have anything else to say about these topics?

22. Do you have any recommendations for other people I should interview to discuss these topics?

End time:

### **Section 3 - Resource Users**

This section should be used for interviews with residents of local communities who use natural resources (e.g., sea turtles, fishing, timber) in São Tomé and Príncipe. If the interviewee is directly involved in monitoring (un)sustainable practices in conservation projects (e.g., sea rangers), section 1 of this guide should be used.

- Island:

- Interview Date:

- Start Time:

- Age:

- Gender:

- Nationality:

1. What do you usually do to generate food and/or income? For example, which sea or land resources are most important to you? Do you buy or harvest these resources? Do you sell any of these resources or use them exclusively for yourself or your family? [Specific examples that would be useful to explore: fish, timber, charcoal, sea turtle]

2. Are there any rules in São Tomé and Príncipe regarding the use of these resources? Can you tell me a little about these rules or laws? [Ask specifically about possible rules or laws related to sea turtles (if not mentioned)]

3. In your opinion, what purpose do the rules or laws regarding the use of natural resources and areas serve? And what are the benefits or problems of these rules/laws? How were these rules/laws created? And when the laws were created, what kind of information or support was provided to the communities?

4. In São Tomé/Príncipe, who is responsible for enforcing these rules and laws related to natural resources or areas? [Ask specifically about rules/laws related to sea turtles (if not mentioned)]

5. Have you had any direct interaction with the agents responsible for this control/enforcement? For example, have you ever had an incident related to unsustainable or illegal use of resources? And how do you think the responsible agents acted (e.g., correctly, fairly)? [If the interviewee did not interact directly, ask more generally about how agents usually operate]

6. Over time, have you had any connection with nature conservation projects in São Tomé/Príncipe? If so, what type of connection (e.g., participated in training sessions, received material/financial support, employment, etc.) and which organization or project? [Specifically, try to understand whether the interviewee collaborates or has collaborated on measures related to the enforcement or monitoring of rules and laws related to natural resources]

7. [If the interviewee collaborates or has collaborated on measures related to the enforcement or monitoring of rules and laws related to natural resources, ask:] When you collaborate in these activities, what types of behaviors/uses of natural resources or natural areas are monitored or monitored? And what rules associated with these resources or natural areas do you try to enforce (e.g., measures associated with prohibitions or the definition of criteria for sustainable use)? [If the interviewee engages in activities related to marine resources, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

8. [If the interviewee collaborates or has collaborated on measures related to the enforcement or monitoring of rules and laws related to natural resources, ask:] In your opinion, what are the main challenges related to this enforcement or monitoring? [If the interviewee engages in activities related to marine resources, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

9. In your opinion, what are the main reasons that lead residents to engage in behaviors that violate the rules related to resources or natural areas? And beyond enforcement, how could people be encouraged to stop engaging in these behaviors? [If the interviewee engages in activities related to marine resources, ask specifically about sea turtle initiatives (if not mentioned)]

#### **A) Resident Involvement at Different Points of the Enforcement System**

10. To enforce rules and laws related to natural resources, there are several steps (e.g., detecting non-compliance, seizing, prosecuting, etc.). In your experience, are residents of São Tomé/Príncipe involved in any of these steps? [If the interviewee is involved in marine resource-related activities, ask specifically about sea turtle initiatives (if not mentioned)]

11. Now I will read some examples and would like to know if they currently exist or have ever existed in São Tomé/Príncipe [for each example listed below, record whether they existed in the past/exist now/never existed]:

a) Members of local community groups are hired to conduct patrols and report behavior that violates the rules;

b) Community members dissuade others from engaging in behavior that violates the rules;

c) local residents apply social sanctions (e.g., shaming), and the identified offender is not arrested;

(d) local residents mitigate risks to wildlife by removing threats, such as illegal fishing gear;

(e) community representatives conduct patrols in collaboration with rangers who have the authority to make an arrest;

(f) an offender is fined on the spot and does not need to go to court;

(g) a local resident serves as a witness in court;

(h) local residents confiscate valuable equipment (e.g., illegal logging machinery) during patrols, which eliminates a threat and constitutes part of a sanction;

(i) evidence provided by a local resident helps convict an offender;

(j) community members sanction a convicted offender (e.g., by imposing a monetary fine). 12. [Ask only if the interviewee or organization carries out activities related to marine resources and did not mention examples related to compliance with rules related to sea turtles:] Are you aware of any specific

cases of these examples related to compliance with rules/laws regarding sea turtles in São Tomé/Príncipe? If so, can you tell me a little about them?

13. [Ask only if, in question 11, the interviewee said there was some type of community involvement] Based on the list of previous examples, present or past, do you have any experiences you would like to share about community involvement in these actions? For example, some things that went well/failed? And some advantages or problems of using these approaches with community involvement? For example, do you see any improvement in people's behavior or in relations between authorities and the population because of these approaches? 14. Based on the list of previous examples that do NOT exist in the past or present, do you think there are any measures that should be used in São Tomé/Príncipe to engage people in steps related to compliance with rules and laws related to natural resources? What might be the challenges or opportunities of trying to use these new measures? For example, do you think these approaches would change people's behavior or the relationship between authorities and the population? [If the interviewee or organization carries out activities related to marine resources, ask specifically about possible application in initiatives related to sea turtles and marine protected areas (if not mentioned)]

15. Based on your experience, do you think there are groups in the communities that are more difficult to engage in initiatives related to the enforcement or monitoring of rules and laws related to natural resources? Why do you think this is?

## **B) Nature of Local Participation in Decision-Making**

16. Do local community residents contribute in any way to decision-making regarding how rules and laws related to natural resources are made or implemented in São Tomé/Príncipe (e.g., deciding where patrols are conducted, deciding what penalties to apply, or what regulations to create)?

a. [If interviewee said YES, ask:] Can you tell me a little about this and the benefits or challenges of using this approach? [If interviewee works with marine resources, ask specifically about initiatives related to sea turtles and marine protected areas (if not mentioned)]

b. [If interviewee said NO, ask:] What might be the challenges or opportunities of doing this? For example, do you think these approaches would change your work or people's behavior? [If interviewee works with marine resources, ask specifically about possible application to initiatives related to sea turtles and marine protected areas (if not mentioned)]

## **C) Type of External Support Provided**

17. [Ask only if, in question 11, the interviewee said there was some type of community involvement:] Do residents of local communities receive any external support (e.g., materials, money, training, etc.) for their involvement in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? In general, do they do this on a voluntary basis or are they employed to be involved? [If the interviewee or organization carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

18. [Ask only if, in question 11, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think they should receive some external support (e.g., materials, money, training, etc.)? In general, do you think they should do this on a voluntary basis or be employed to be involved?

## **D) Motivating Forces for Local Participation**

19. [Ask only if, in question 11, the interviewee said there was some type of community involvement] In your opinion, what are the reasons that lead residents of local communities to want to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São

Tomé/Príncipe? [If the interviewee carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

20. [Ask only if, in question 11, the interviewee said there was NO community involvement] In your opinion, what are the reasons that lead residents of local communities NOT to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? And what factors can encourage this involvement?

### **E) Degree of formalization of local participation**

21. [Ask only if, in question 11, the interviewee said there was some type of community involvement] Do residents of local communities who choose to engage in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe have a contract, agreement, or other type of document that describes their duties and responsibilities? Or do they do so informally? Can you tell me a little about this and the benefits or drawbacks of using these approaches? [If the interviewee engages in activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

22. [Ask only if, in question 11, the interviewee said there was NO community involvement] If there were residents involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think there should be a contract, agreement, or other type of document that describes their duties and responsibilities? Or should they do this informally? What might be the challenges or opportunities of doing so?

23. Thank you so much for your time! Do you have anything else to say about these topics?

24. Do you have any recommendations for other people I should interview about these topics?

End time:

### **Section 4 - Representatives of Government Institutions**

Representatives of government institutions refer to people who work in government agencies, but in higher positions, such as directors or heads of captaincies, for example. This group differs from the first because here it is assumed to focus on people who, although they work on environmental issues, do so in a more bureaucratic manner and less in the field.

- Island:

- Interview Date:

- Start Time:

- Age:

- Gender:

- Nationality:

1. Can you tell me a little about your occupation? For example, how long have you been in this role? And how does your institution relate to sea turtles, marine protected areas, and other natural area protection interventions, such as nature reserves and the natural park in São Tomé/Príncipe?

2. At your institution, what types of behaviors/uses of natural resources or natural areas are monitored or monitored? What rules and laws associated with these resources or natural areas do you try to enforce (e.g., measures associated with prohibitions or defining criteria for sustainable use)? [If the interviewee engages in activities related to marine resources, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

3. In your opinion, what are the main challenges related to this enforcement or monitoring? And what would you do to address these challenges? [If the interviewee engages in activities related to marine resources, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

4. In your opinion, what are the main reasons residents engage in behaviors that violate the rules/laws related to natural resources or areas? And beyond enforcement, how could people be encouraged to stop these behaviors? [If the interviewee is involved in marine resource-related activities, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

### **A) Resident Involvement at Different Points of the Enforcement System**

5. To enforce rules and laws related to natural resources, several steps are necessary (e.g., detecting non-compliance, seizing, prosecuting, etc.). In your experience, are residents of São Tomé/Príncipe involved in any of these steps? [If the interviewee is involved in marine resource-related activities, ask specifically about any connection to sea turtle initiatives (if not mentioned)]

6. Now I will read some examples and would like to know if they currently exist or have ever existed in São Tomé/Príncipe [for each example listed below, record whether they existed in the past/exist now/never existed]:

a) Members of local communities or groups are hired to conduct patrols and report behavior that violates the rules; b) community members dissuade others from engaging in behavior that violates the rules;

c) local residents apply social sanctions (e.g., shaming), and an identified violator is not arrested;

(d) local residents mitigate risks to wildlife by removing threats, such as illegal fishing gear;

e) community representatives conduct patrols in collaboration with rangers who have the authority to make an arrest;

f) a violator is fined on the spot and does not need to go to court;

g) a local resident serves as a witness in court;

h) local residents confiscate valuable equipment (e.g., illegal logging machinery) during patrols, which eliminates a threat and constitutes part of a sanction;

i) evidence provided by a local resident helps convict a violator;

j) community members sanction a convicted violator (e.g., by imposing a monetary fine).

7. [Ask only if the interviewee carries out activities related to marine resources and did not mention examples related to sea turtles:] Are you aware of any specific cases of these examples related to compliance with rules/laws regarding sea turtles in São Tomé/Príncipe? If so, can you tell me a little about them?

8. [Ask only if, in question 6, the interviewee said there was some type of community involvement] Based on the list of previous examples that exist in the present or past, do you have any experiences you would like to share about community involvement in these actions? For example, some things that went well/failed? And some advantages or problems of using these approaches with community involvement? For example, do you see any improvement in your work or in people's behavior because of these approaches?

9. Based on the list of previous examples that do NOT exist in the past or present, do you think there are any measures that should be used in São Tomé/Príncipe to involve people in steps related to compliance

with rules and laws related to natural resources? What might be the challenges or opportunities of trying to use these new measures? For example, do you think these approaches would change your work or people's behavior? [If interviewee works with marine resources, ask specifically about possible application in initiatives related to sea turtles and marine protected areas (if not mentioned)]

### **B) Nature of local participation in decision-making**

10. Do residents of local communities help in any way to make decisions about how rules and laws related to natural resources are made or implemented in São Tomé/Príncipe (e.g., deciding where patrols are conducted, deciding what penalties to apply, or what rules to create)?

a. [If interviewee said YES, ask:] Can you tell me a little about this and the benefits or problems of using this approach? [If interviewee works with marine resources, ask specifically about initiatives related to sea turtles and marine protected areas (if not mentioned)]

b. [If interviewee said NO, ask:] What might be the challenges or opportunities of doing this? For example, do you think these approaches would change your work or people's behavior? [If interviewee works with marine resources, ask specifically about possible application to initiatives related to sea turtles and marine protected areas (if not mentioned)]

### **C) Type of External Support Provided**

11. [Ask only if, in question 6, the interviewee said there was some type of community involvement:] Do residents of local communities receive any external support (e.g., materials, money, training, etc.) for their involvement in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? Generally, do they do this on a voluntary basis, or are they employed to be involved? [If the interviewee or organization carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

12. [Ask only if, in question 6, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think they should receive some external support (e.g., materials, money, training, etc.)? In general, do you think they should do this on a voluntary basis or be employed to be involved?

### **D) Motivating Forces for Local Participation**

13. [Ask only if, in question 6, the interviewee said there was some type of community involvement] In your opinion, what are the reasons that lead residents of local communities to want to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? [If the interviewee carries out activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

14. [Ask only if, in question 6, the interviewee said there was NO community involvement] In your opinion, what are the reasons that lead residents of local communities NOT to get involved in actions related to the enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe? And what factors can encourage this involvement?

### **E) Degree of formalization of local participation**

15. [Ask only if, in question 6, the interviewee said there was some type of community involvement] Do residents of local communities who choose to engage in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe have a contract, agreement, or other type of document that describes their duties and responsibilities? Or do they do so informally? Can you tell me a little about this and the benefits or drawbacks of using these approaches? [If the interviewee engages in activities related to marine resources, ask specifically about initiatives related to sea turtles (if not mentioned)]

16. [Ask only if, in question 6, the interviewee said there was NO community involvement] If residents were involved in enforcement or monitoring of rules and laws related to natural resources in São Tomé/Príncipe, do you think there should be a contract, agreement, or other type of document that describes their duties and responsibilities? Or should they do this informally? What might be the challenges or opportunities in doing so?

[Ask only if, in question 7, the interviewee said there was some type of community involvement] Do residents of local communities who choose to engage in enforcement of rules and laws related to natural resources in São Tomé/Príncipe have a contract, agreement, or other type of document outlining their duties and responsibilities? Or do they do this informally? Can you tell me a little about this and the benefits or challenges of using these approaches? [If they engage in marine resource-related activities, ask specifically about sea turtle initiatives (if they don't mention this)]

[Ask only if, in question 7, the interviewee said there was NO community involvement] If residents were involved in enforcement of rules and laws related to natural resources in São Tomé/Príncipe, do you think there should be a contract, agreement, or other type of document outlining their duties and responsibilities? Or should they do this informally? What might be the challenges or opportunities in doing this?

17. Thank you so much for your time! Do you have anything else to say about these topics?

18. Do you have any recommendations for other people I should interview to discuss these topics?

End time: