Co-Designing Protected Areas Management with Small Island Developing States' Local Stakeholders: A Case from Coastal Communities of Cabo Verde

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Abstract: The Small Island Developing State, Cabo Verde, is one of the most important marine biodiverse hotspots in the North Atlantic. One of its national conservation strategies has been the declaration of protected areas, and currently, the country has 47 declared protected areas and only 26 have been fully implemented. The latest protected area, Baía do Inferno e Monte Angra Natural Park, is the first protected area proposed by a civil initiative, and the local people strongly support the declaration of this protected area. Therefore, this study aims to better understand the mechanisms behind strong local support, explore the lessons learned from this case and how it can help improve the implementation of other protected areas in Cabo Verde. We conducted 7 semi-structured interviews with previously identified community leaders and 480 questionnaires with the general population of the local communities. The results show that 78.6% of the questionnaire respondents chose co-management as the desired management model. We also found that non-governmental organizations and local leaders have played a crucial role in sharing knowledge with local populations and helping them to have a critical and informed view about the future implementation of the protected area.

Keywords: civil initiative; collective actions; co-management; community participation; protected area management; small island developing states

1. Introduction

The Small Island Developing States (SIDS) are a group of 52 small countries and territories located in the tropics and low-latitude sub-tropics, and are characterized by their large coastal and marine area, when compared to their land area, and by their remote geography [1,2]. These insular states are known for being highly vulnerable to external circumstances, economically, socially, and ecologically, and for having a low capacity to adjust to changing external factors [1].

The remoteness and isolation typical of these small states make their economy quite exposed to external economic and political influences, as they cannot compete with major global economies and are highly dependent on foreign financing [3–5]. SIDSs do not have a wide variety of economic activities and have limited resources [6]. Therefore, they often depend on marine and coastal resources and, in most cases, have international beach tourism as their main economic activity [5,7–9]. All of these factors contribute to low-income households, high rates of poverty and, consequently, socioeconomically vulnerable communities [3,6]. Moreover, SIDSs are particularly vulnerable to environmental factors, as they possess unique ecosystems and biodiversity, and are highly impacted by natural

disasters, climate change-related events, and increasing human activities [10–14]. These fragile and unique ecosystems are often home to endemic or endangered species, which put SIDS as important sites for the conservation and protection of species and habitats [15,16].

Indeed, SIDS are unique vulnerable territories where the balance between socio-economic and ecological aspects is particularly crucial for sustainable development [17]. Such a balance guarantees both the survival of local people and the achievement of conservation targets [18]. In addition, due to their small land size, SIDS' communities often live, use, and exclusively depend on the same natural resources that are to be preserved and protected [19]. They are directly impacted by any management decision made regarding their coastal and marine resources [20]. Such decisions can have a negative impact, such as overfishing, pollution, habitat degradation, and less access to resource rights, or a positive impact, such as food security, alternative livelihoods, and improved well-being [20,21]. Thus, to assure sustainable development, it is fundamental that top-level stakeholders (e.g., regional authorities and government officials) assess the communities' perceptions and expectations [21,22] in order to design policies and practices that target both ecological and socio-economic needs [19,21–23].

Furthermore, communities have the right to participate in decision-making processes [24,25], and their involvement in it, combined with strong collaboration between communities and authorities, positively contributes for an effective and efficient management of resources and, consequently, for the sustainable development of the SIDS' communities [21,25–27]. It minimizes conflicts of interests, increases the acceptance of new projects and regulations by the community, facilitates the co-designing of realistic solutions, contributes to an equitable share of benefits, facilitates the identification of challenges and issues and, ultimately, increases the communities' sense of ownership [21,25,28].

Therefore, it is very important that SIDS' communities are involved in decision-making processes, are integrated in socio-ecological development activities, and have good communication with top-level stakeholders [26,28,29].

2. Protected Areas in Cabo Verde

2.1. Characterizing Cabo Verde as a SIDS

The study site, Cabo Verde, is a SIDS located around 600 km off coast of Senegal (14–17° N, 22.5–25.5° W), with a service-oriented economy that has tourism as the main contributor to the Gross Domestic Product. The archipelago has a small local market, few exportable resources (mainly fish), and limited agricultural and mineral production, all of which contribute to the country's economic vulnerability [30].

Characterized by intense and prolonged periods of drought [31], Cabo Verde is one of the Atlantic's most valuable marine endemism sites [32,33], and its 956 km coastline is one of the world's most important nesting sites for the loggerhead sea turtle (*Caretta caretta*) [34,35]. The cliffs and mountains of the archipelago are also nesting grounds for endemic and endangered species of seabirds [36,37]. Therefore, Cabo Verde has a big responsibility to protect certain habitats and species, so much so that the country signed the Convention on Biological Diversity in 1995. Since then, the country's national development plans have focused more and more on environmental protection and conservation [38], and since 2003, the country has declared 47 Protected Areas (PAs) as a way to increase conservation efforts. However, the implementation rate has been only 55% thus far, and the participation of local communities in PAs' decision-making processes is low, with little published literature on the matter. In this paper, we present a case of the last declared PA in Cabo Verde, better described in Sections 2.2 and 2.3, which was the first to be proposed (and was approved) to the government by the local stakeholders. We aim to understand the processes behind this community initiative and to discuss the lessons learned from this case.

2.2. Legal Base and Implementation Challenges

Cabo Verde constitutional Article No. 72 establishes that "everyone has the right to a healthy and ecologically balanced environment and the duty to defend and enhance

it" [39]. This reveals an approach to environmental policy that instigates a conscious and participatory society regarding environmental issues, which lays the foundation for sustainable development.

The country's legislation seems to have an integrative and sustainable approach when it comes to natural resource management. Decree-Law No. 3/2003 defines Protected Areas as "natural spaces, landscapes, monuments and places which, due to its relevance to biodiversity, its natural resources, ecological function, socio-economic, cultural, tourist or strategic interest, deserve special protection and to be integrated into the National Network of Protected Areas, thus contributing to the conservation of nature and the country's self-sustainable development" [40]. In addition to the legal framework for PAs, Decree-Law No. 3/2003 facilitated the development of important management structures and tools, as it categorized the different protected areas and established the National Network of Protected Areas. The Decree was a crucial tool in resolving conflicts of interest and in safeguarding the balance between different sectors, such as the conservation of biodiversity and habitats, the protection of cultural and aesthetic values, and securing people's basic socio-economic needs [40,41].

By 2020, Cabo Verde had 46 protected areas, which represented 18.19% of the total land area (733.57 km^2) and 5.66% of the marine area (1321.28 km^2) [42]. This is aligned with the guidelines of the Aichi Biodiversity Target 11, which appeals to the conservation of at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas [43].

The implementation and management of all PAs has proven to be a great challenge for Cabo Verde. In 2012, almost ten years after the establishment of the PAs National Network, only 3 of the 46 PAs were fully implemented and operational [44]. In 2021, the scenario changed, with 26 PAs implemented and management structures [45]. Despite the significant improvement, the lack of implementation of PAs remains one of the major obstacles for Cabo Verde when it comes to natural resources management. The questionable efficiency and effectiveness of some management plans, the scarcity of financial resources, and investment seem to be hindering the full implementation of the PAs National Network [45,46] and the achieving of Aichi Targets.

2.3. The Baía do Inferno e Monte Angra Natural Park

The Baía do Inferno e Monte Angra (BIMA) is a unique bay in Cabo Verde's Santiago Island, bordered by cliffs extending 8 km, deep-ocean waters to the northwest, and desert-like mountains to the southeast [47]. These cliffs' height can range between 30 to 577 m [48], and serve as colonies to numerous seabirds, being the country's largest colony of Brown-boobies (*Sula leucogaster*) and one of West Africa's largest colonies of Red-billed Tropic-birds (*Phaethon aethereus*) [48,49]. The deep-ocean waters are among the most productive fishing areas of Santiago Island. The bay has been classified as a Key Biodiversity Area (KBA) and an Important Bird Area (IBA) [49].

On April 2021, through Decree-Law No 3/2021, the Government made a new addition to the PA's National Network and declared the Baía do Inferno e Monte Angra as a Natural Park. The new protected area comprises 20.06 km^2 of marine area and 28.14 km^2 of terrestrial area, totaling 48.20 km^2 of protected area (see Figure 1).

With the support of local universities, the PA declaration was proposed by local stakeholders in a collective action between the environmental non-governmental organization (NGO), Lantuna, and the three communities located nearby and within the limits of the Natural Park. The three communities are Porto Rincão, Porto Mosquito, and Entre Picos de Reda, marked as 1, 3, and 2, respectively, in Figure 1. It is important to highlight that in this paper, collective action is used to describe an action that requires the involvement of a group of people, it requires a shared interest within the group, and it involves some kind of common action that works in pursuit of that shared interest, as stated by Meizen-Dick and colleagues [50]. In general, the action is voluntary and can be taken by both formal and informal organizations or a group of people.
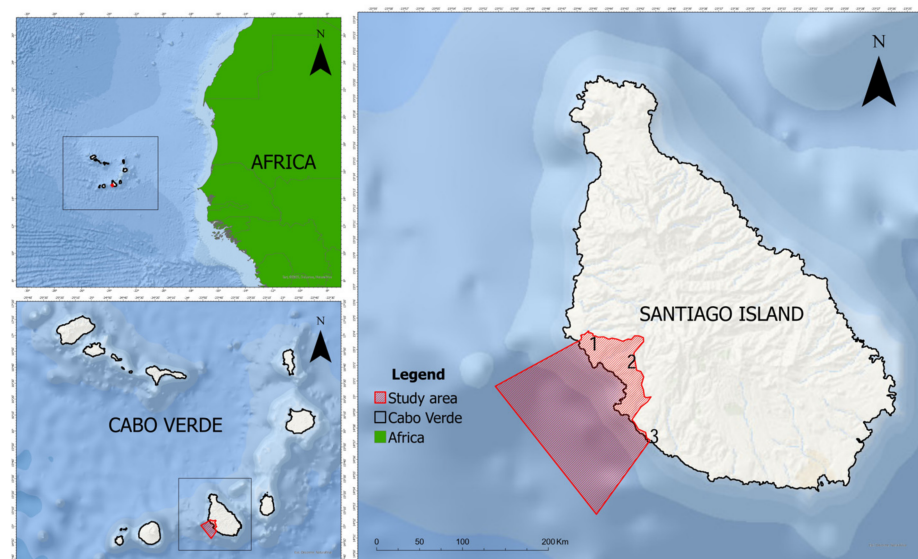
Figure 1. Map of Study Area, Natural Park of Baía do Inferno e Monte Angra, in Santiago Island, Cabo Verde. The numbers locate the communities under study: (1) Porto Rincão, (2) Entre Picos de Reda e (3) Porto Mosquito.

The BIMA natural park was the first protected area in Cabo Verde to be proposed by civil society, instead of researchers and legislators. Demonstrating the communities' understanding of the local natural resources' value and their sense of ownership. Henceforth, and considering the country's history of low PA implementation, the biggest challenge will be to fully implement the BIMA natural park, which should include the design of management plans and structures.

Moreover, the government of Cabo Verde has shown interest in implementing co-management as a model for protected area management, but there has been no effective implementation of this model. Nevertheless, the communities of the BIMA region have shown great support for the establishment of the PA and a strong willingness to participate in management, as we will show later in the results. Hence, our conviction that BIMA Natural Park could be a great candidate to better test the implementation of co-management of PAs in Cabo Verde.

Local communities were crucial for the legal establishment of the Natural Park, so it is necessary to make full use of the ongoing communities' engagement and catalyze the implementation of the BIMA protected area.

Additionally, published literature on protected area management in Cabo Verde is scarce, focusing mostly on biodiversity conservation and monitoring aspects and often disregarding the socio-ecological dynamics in place. This study will be one of few to describe a community-led initiative in the context of protected area management in the country and will contribute to fulfilling the research gap on the topic.

Considering that BIMA natural park is the first civic-led proposal for a protected area in Cabo Verde, the challenges to implement protected areas, and the importance of community participation for the sustainable and equitable management of protected areas, this study aims to:

- Understand the contributing factors to strong community participation in the BIMA natural park proposal;
- Describe the communities' perceptions and expectations of socio-ecological aspects of the BIMA natural park;
- Outline the lessons learned from this case and identify facilitating mechanisms for better implementation of the Protected Areas in Cabo Verde.

3. Methods

3.1. Qualitative Analysis

In order to characterize and understand perceptions of BIMA's local stakeholders, we sampled three communities attached to the Natural Park, Entre Picos de Reda, Porto Mosquito, and Porto Rincão, through the use of interviews and questionnaires. In preparation for data collection and for better integration and collaboration with the local population, preliminary visits and stays (immersion periods) were made in all three communities. The data were collected from September to October 2021.

3.1.1. Interviews with Community Leaders

Semi-structured interviews were conducted with seven (total N = 7) local leaders from all three communities: Entre Picos de Reda (*n* = 1), Porto Mosquito (*n* = 2) and Porto Rincão (*n* = 4). Community leaders were chosen based on information collected from the population and local organizations during the immersion period with the communities. Along with an extensive literature review, the interviews served as a base to design the questionnaires' structure. The interview's design followed the guidelines of Bryman [51], which defines different social research methods.

The interviews were analyzed using NVivo Qualitative Data Analysis Software, following the guidelines of Gibbs' Content Analysis method [52], and using the direct approach to code categories that are derived directly from the text data [53]. Audio recordings were made from all interviews, which were transcribed, translated, and then analyzed.

3.1.2. Questionnaires

The questionnaires' design was based on the community leaders' interview results and applied to the general population of the three communities under study, using the Snowball Sampling Method. A total of 480 questionnaires were conducted: Entre Picos de Reda (*n* = 226), Porto Mosquito (*n* = 150), and Porto Rincão (*n* = 104). The data were collected using KoboCollect, an open-source Android data collection application that allows the gathering of a wide variety of information, and research data is directly entered into an Android device that is capable of exporting data to a connected database [54]. Descriptive analysis of the data was done using IBM SPSS Statistics.

3.2. Quantitative Analysis

After the descriptive analysis of the questionnaire data, we conducted the quantitative analysis described below. In our quantitative analysis, we excluded eight samples with incomplete data; hence, the total number of samples analyzed was 472.

3.2.1. Factor Analysis of Mixed Data

We performed a factor analysis of mixed data (FAMD) to visualize the relationships among different variables from the questionnaires. We included management model, living place, gender, education level, occupation, and experience of working with a local NGO as categorical variables, and age as a numerical variable in FAMD. We ran FAMD in R version 4.2.2 using a package FactoMineR [55].

3.2.2. Ordinal Logistic Model

Using the ordinal logistic model (OLM), we identified what attributes determine people's preferences for the type of management. We modeled the "management model" as a response variable against several social factors that might have affected people's preference as predictors, namely place, age, gender, education level, occupation, and experience of working with the NGO (see Table 1 in Section 4). The variable of the management model has three levels of community involvement: (1) management by authority (centralized); (2) co-management; and (3) community-based management.

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First, we tested the correlation between explanatory variables to detect multicollinearity. We applied Cramer's V when testing the correlation between two categorial variables and the Eta correlation between a categorical variable and a numerical variable. We then ran a simple model containing each of the six explanatory variables, as was done by Crees and colleagues [60] to identify significant variables using Bonferroni corrected *p*-values. Based on the multicollinearity test and univariate analysis, we omitted age and gender. Two variables (place and occupation) correlated with each other, yet both were significant in the univariate analysis. We finally omitted insignificant variables of place based on our findings in FAMD, indicating that occupation is the most contributing variable in the first and second dimensions. Thus, a final set of explanatory variables was composed of education level, occupation, and experience working with the NGO.

Second, we ran a full model using the three explanatory variables using no education, non-applicable (those not in the labor market), and no experience working with the NGO as references to compare with other factors for each of the three variables. We then carried out the model selection. When there was a statistically insignificant term, we dropped it from the model and compared models with and without the term using the likelihood ratio test and AIC [61]. If the result of the test indicated no significant difference between the two models, and AIC showed that dropping the term improved the model fit (lower AIC), we decided to exclude it. After a series of likelihood ratio tests, we obtained the final model with two explanatory variables: occupation and experience of working with the NGO. We finally examined the model fit by applying the Lipsitz goodness-of-fit test [62]. The test indicated a good correlation between predicated and observed values (*p* = 0.307). We conducted all analyses in R version 4.2.2 and ran OLM using a package ordinal [63].

4. Results

4.1. Qualitative Analysis Results

4.1.1. Communities' Characteristics

Part of the communities' questionnaire results are shown in Table 1. These are also the variables used to run the Ordinal Logistic Model.

Most questionnaires' respondents had an elementary level or no education at all. About a third of the sampled people were fishers, and most respondents had worked with local environmental NGOs or had previous knowledge of their work. It is important to highlight that a significant percentage of the respondents chose co-management as the preferred model for the BIMA natural park.

Table 1. Questionnaire respondent characteristics and variables used in the Ordinal Logistic Model (*n* = 472). The variable age does not show the percentage, as it is treated as a numerical variable.

Variable	%
Management Model	
Management by the authority (Centralized or management without community involvement)	4.7%
Co-management	78.6%
Community-based	16.7%

Table 1. *Cont.*

Variable	%
Living place	
Porto Rincão	47.0%
Porto Mosquito	31.1%
Entre Picos	21.8%
Age	
Male	52.3%
Female	47.7%
Education level	
No education	50.6%
Elementary school	33.5%
Middle school to high education	15.9%
Occupation	
Fisher	30.1%
Trade, transport & food	19.3%
Agriculture	17.2%
Non-applicable (e.g., unemployed, housewife)	14.8%
Construction	8.5%
Education, public administration, & other services	4.7%
Mining & quarrying	2.8%
Student	2.8%
Experience of working with the NGO	
No experience	38.1%
Had experience	31.1%
N/A (Not knowing the NGO)	30.7%

4.1.2. Characteristics and Perceptions of Community Leaders

These are the results from the community leaders' interviews (see Table 2). To each code, there is a corresponding number of respondents (N = 7), followed by the number of references that each code has.

According to community leaders, fisheries and agriculture are the main socio-economic activities, and the poor urbanization and planning of their communities is identified as the biggest challenge to socio-economic development. The community leaders described different collective actions carried out by the community and local organizations, highlighting the benefits coming from the work of local environmental NGO. The interviews revealed their expectations regarding BIMA natural park implementation, both future benefits and challenges. Most community leaders prefer a co-management model for the BIMA natural park.

Table 2. Community leaders' perceptions.

Codes	Number of Respondents	Number of References
Main socio-economic activities		
Fisheries	6	9
Agriculture	5	6
Sand extraction	4	5
Main socio-economic challenges		
Poor urbanization, planning	7	8
Lack of infrastructures	4	5
Isolation	3	4
Politics	3	4
Collective actions		
Socio-economic development	6	17
Associativism	7	9
Natural Park proposal	3	3
NGO benefits		
Raise awareness	1	1
Socio-economic development	1	1
Expected benefits from the PA		
Tourism increase	5	5
Conservation of species and habitats	2	4
Community participation in management	3	3
Job creation	2	3
Expected challenges for the PA		
Unequal share of benefits	2	3
Lack cohesion between communities	2	2
No community participation in management	1	2
Preferred management model		
Co-management	4	9
NGO & Community management	2	3
Community management	1	2

4.1.3. Communities' Perceptions

Table 3 below shows the data collected from the communities' questionnaires, and it describes the communities' perceptions on some socio-ecological aspects of the BIMA natural park. It is worth mentioning that fisheries (77%) are perceived as the most important socio-economic activity, with unemployment (69%) and drought (65%) being described as the most significant challenges for the socio-economic development of BIMA's communities (see Table 3). The support for the PA's implementation is very strong, as 95% (N = 480) of respondents agreed with the Natural Park's declaration, 2.92% were indifferent, and only 2.08% were against it.

Table 3. Communities' perceptions of socio-ecological aspects.

Top 3 Socio-Economic Activities (Multiple-Choice Question)	Percentage
1. Fisheries	77%
2. Cattle farming	27%
3. Plant farming	11%
Main socio-economic challenges (multiple-choice question)	
Unemployment	69%
Poor sanitation, planning	65%
Drought	24%
Importance of Conservation	
Very important	64.2%
Important	29.6%
Indifferent	1%
Little important	2.1%
Not important	3.1%
Expected benefits from the PA (multiple-choice question)	
Tourism increase	82.08%
Job creation	65.21%
New sources of income	37.5%
Improve fishing practices	13.54%
Biodiversity conservation	13.54%
Environmental awareness	10.42%

4.2. Quantitative Analysis Results: Co-Management Model

Our results for FAMD showed that the first two dimensions explained 24.7% of the observed variation (Figure 2). Although this figure is lower than that of other studies (e.g., [64,65]), our results showed clear relationships among several factors. For example, individuals who preferred community-based management clustered in the first and second quadrants (Figure 2A), and this trend overlapped with those who resided in Entre Picos (Figure 2B) and those who worked as farmers or cattle farmers (agriculture) (Figure 2E). Another instance is that, despite a small number of individuals, a cluster of those who preferred management by the authority (centralized) spanned the third and fourth quadrants (Figure 2A). A similar trend was observed for those who did not know the NGO (Figure 2F).

The OLM suggested that factors relevant to occupation and experience of working with the NGO were significantly associated with the preference of the management model, namely agriculture (farmer and cattle farmer) and those who did not know the NGO (Table 4). These two factors exhibited contrasting results. The former group tended to prefer community-based management more than the other occupation groups. In contrast, those who answered that they did not know about the conservation activities by the local NGO were less likely to prefer community-based management, but management by the authority, than other groups under this variable.
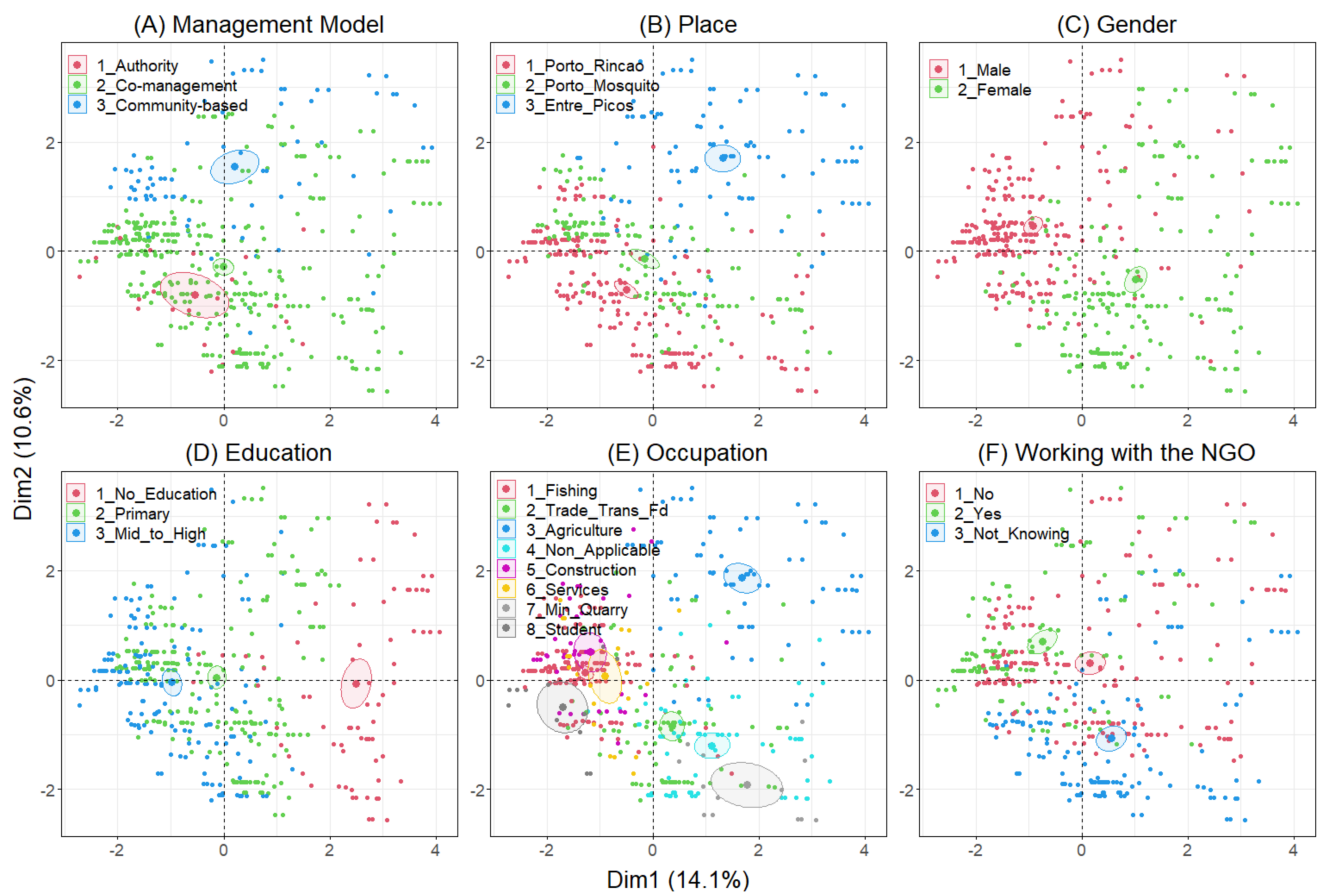
Figure 2. The distribution of 472 individuals according to two dimensions (Dim1 and Dim2) from the factor analysis of mixed data for six categorical variables: (**A**) management model; (**B**) living place; (**C**) gender; (**D**) education level; (**E**) occupation; and (**F**) experience of working with the NGO.

Table 4. Results of the ordinal logistic models ($\alpha = 0.05$ indicated with asterisks).

Variables	Estimate	Std. Error	Z-Value	*p*-Value	Odds Ratio
Occupation (Reference: Non-applicable)					
Fishing	−0.034	0.394	−0.086	0.931	0.967
Trade, transportation & food	0.444	0.414	1.071	0.284	1.559
Agriculture	1.281	0.410	3.122	0.002 *	3.601
Construction	0.586	0.502	1.168	0.243	1.796
Education, public administration, & other services	0.762	0.607	1.257	0.209	2.143
Mining & quarrying	1.021	0.749	1.362	0.173	2.775
Student	−1.036	0.799	−1.297	0.195	0.355
Experience of working with the NGO (Reference: No experience)					
Had experience	−0.213	0.272	−0.782	0.434	0.808
Do not know the NGO	−1.334	0.310	−4.299	<0.001 *	0.264

5. Discussion

5.1. Local Support for BIMA Natural Park

The BIMA natural park is the 47th protected area of Cabo Verde and the first to be proposed by a civic-led initiative. The survey results showed that the local communities strongly supported the declaration and consequent implementation of this protected area (95%, total N = 480). This intrigues one to explore the factors behind the high community engagement and the strong support for the BIMA natural park.

In addition to the natural park proposal, the interviews with the community leaders (CL) revealed different past collective actions held by the studied communities for protection of biodiversity and habitats, socio-economic development, and social security. CL ID04 described a project aiming to rehabilitate houses: "In the social area we had projects to build and rehabilitate houses. We rehabilitated about 20 houses from 2010 to 2014 and built 12 from scratch". CL ID07 mentioned another collective action that tackled one of the most important socio-economic challenges that these communities face, drought (see Table 3) and a lack of access to piped water: "We understood that the priority was to have water cisterns in order to help mitigate the problem of water scarcity. We looked for funding, and sometimes we got five or ten cisterns... We continued until everyone had their own cistern at home". The interviews revealed many other examples of collective action taken in the BIMA communities, such as beach cleaning campaigns or voluntary monitoring of nesting sea turtles.

It is important to mention that most of the collective actions described in the interviews were taken using the "djunta mon" practice, a Cabo Verdean language term that translates to "joining hands" in English. The "djunta mon" is defined as a social practice of mutual help and non-remunerated cooperation between members of a community [66,67]. The "djunta mon" practice started in rural communities where neighboring farmers would help each other harvest the crops and, nowadays, it has extended to urban and emigrant communities as well [67,68]. Therefore, it seems that BIMA communities have a history of joining forces, cooperating, and working for a common goal. This capacity for collective action could explain their strong engagement in the protected area proposal.

The surveys' results showed that the communities had important expectations with the natural park's implementation. Mainly, the communities expected socio-economic benefits, such as tourism increase (82.08%, see Table 3) and job creation (65.21%, see Table 3). The country's economy relies heavily on tourism, and community-based tourism is a growing activity [69,70], gaining special importance and challenges when done in protected areas [71,72]. Furthermore, Santiago Island has a high incidence of poverty and some of the country's poorest municipalities [73]. Considering that the sampled communities are rural and isolated areas, a lack of job opportunities and alternative sources of income are expected. Even more, the communities were also informed about the ecological benefits that the PA entails, understanding the intrinsic value of biodiversity and habitats (biodiversity conservation = 13.54%, environmental awareness = 10.42%) and being aware of the need for sustainable exploitation of resources, such as improved fishing practices (13.54%, see Table 3). Therefore, it is important that any implementation plan include a strong balance between conservation efforts and socio-economic development. Therefore, the BIMA communities seem to be aware and informed of the possible consequences of the natural park's implementation and, overall, have positive expectations about it. This is very important to facilitate the PA's implementation, as some studies have shown that communities' attitudes toward protected areas are influenced by the perceived cost and benefits [74–76].

Complementarily, the environmental NGO working on BIMA natural park has developed different activities with and for the communities over the years. Technical training, meetings, sampling of species, environmental education, and awareness campaigns are just some examples of the activities carried. The NGO seems to be playing an important part in socializing and informing the local communities about the protected area, its challenges, and possible benefits. Most likely, this is an important contributing factor for the communi-

ties' support for natural park implementation, as it increases their environmental awareness, as well as their understanding of the need for sustainable use of natural resources. The support of local communities is crucial for the implementation of any protected area. Many studies have shown the importance of informed and supportive communities, as they tend to contribute and participate at all stages of the protected areas management, from its proposal and implementation to monitoring, retention, and regulation enforcement [77,78].

Community support gains particular importance regarding protected area management in SIDS territories [27]. SIDS are characterized by their small land area yet having abundant biodiversity and endemism [11,79], making the natural environment the most abundant resource and a great touristic attraction. These local communities and conservation projects often dispute for the same areas and resources [79]. Therefore, in order to reduce possible conflicts and successfully implement protected areas, the support of local communities is very important [80]. The BIMA natural park seems to have communities with great ability to unite and act collectively, and that strongly supports its implementation, while understanding the potential benefits and challenges ahead. The next important question is whether the communities want to be involved in decision-making processes? What would be the best model for their involvement?

5.2. Communities' Participation in Decision-Making Processes

The BIMA communities were strongly engaged for the protected area proposal to the government, and the results show how strongly they support its implementation. However, the BIMA communities want to actively participate in the natural park's management. Both survey and interviews revealed that co-management was the preferred management model for the natural park, 78.6% of survey's respondents (see Table 2) and 4 out of 7 interviewed community leaders. CL ID01 expressed the following: "In my opinion, co-management would be better and people would feel involved in the project and the community would feel part of it... And that at least each of the communities have a representative". Overviewing all chosen management models, the community had a strong inclination toward any type of management model that included them, whether it was co-management, community management, or a combination of NGO and community management. This is evidenced by the Table 2 data, in which 95.3% of the survey' respondents chose a management model that integrates the community. Analyzing the community leaders' interviews, we found an even firmer position regarding community integration in management; none of the CLs chose a management model done exclusively by the authorities. CL ID07 said the following: "The park is in our territory so the gains that may arise must help the communities that are within the natural park. Now if they are going to get people from outside to manage the natural park, of course we won't be happy with that".

Interestingly, the CLs anticipated a lack of community participation in management as one of the challenges of the natural park's implementation. CL ID04 very clearly exposed the importance of community participation in decision-making processes: "The community already existed before the natural park. This cannot be ignored. Where there is a community and a protected area, the first to be contacted should be the community, because the community has its own experience, its history, its way of living... It has its own way of operating around that protected area, which needs to be understood. From the moment this is understood, then strategies can be drawn up, so that we can work together for conservation".

The BIMA communities clearly want to participate in the natural park's management, and the long-term sustainability of protected areas is often, if not always, dependent on the local community's participation in different decision-making processes [81]. Community participation greatly favors management effectiveness, stimulates environmental conservation practices, and, as a consequence, improves people's livelihoods [81–83].

Moreover, it is also important that the communities' perceptions and expectations are heard, well understood, and integrated in the management plans, particularly in SIDS

contexts [27], where we have vulnerable communities, often inserted in the protected areas, with a limited number of livelihoods and with context-specific challenges. For example, the community leaders expressed some concerns about possible challenges for the protected area. They identified the possibility that different communities will have an "unequal share of benefits" from the natural park's implementation. Porto Mosquito community is much closer to the country's capital, Praia, and when compared to Porto Rincão and Entre Picos de Reda, it is not as isolated. This fact could impact the flow of tourism and access to other economic benefits. CL ID04 stated: "The community of Porto Rincão is within the limits of the natural park, but more than 90% of the activities are developed in Porto Mosquito, which is a community located just outside the natural park's limits". Such a challenge could have gone by unnoticed to outsiders, hence the importance of co-designing with local stakeholders, assessing their perceptions and integrating them in management plans: it allows researchers and policy makers to have a deeper and more realistic understanding of the socio-ecological dynamics and, resulting in more effective management plans and, ultimately, in better implementation of protected areas.

The BIMA communities seem to want a seat at the decision table, shifting from a consultative role to a more participative one. Co-designing with local stakeholders could be a determinant to change the PA implementation scenario in Cabo Verde. Specifically, for the BIMA natural park, a co-designing approach that facilitates community participation in management could not only give continuity to the high acceptance of the PA but also positively contribute toward a balanced, equitable, and sustainable management of BIMA natural park and its communities.

5.3. Importance of Environmental NGOs

A study done in Malawi by Bello and colleagues [84] analyzed the constraints to community participation in protected area-based tourism at two sites. The results showed that, among others, inadequate information, low education levels, lack of trained human resources, a centralized public administration, lack of coordination, and human–wildlife conflicts were the main constraints to community participation.

Through the discussion, there has been a direct or indirect mention of the importance of environmental NGOs in the BIMA natural park proposal and future implementation. The NGO has helped galvanize many collective actions in the BIMA communities, being the most significant one in the coordination of the BIMA natural park civil proposal. The NGO provided technical and scientific support, organized the collection of the necessary signatures, and created a communication path with the government authorities. Moreover, the NGO has carried out several environmental awareness campaigns by including the communities in species sampling and by bringing the communities together to keep their environment clean and safe.

For many years now, the environmental NGO has been developing many activities for technical training and seminars with local fishermen, fishmongers, and women. We believe that these initiatives have contributed to empowering the communities and further developing their critical thinking. Over time, the BIMA communities have gained more knowledge not only about the potential of the PA's implementation but also about the role that they could play in its management. By doing so, the NGO has helped foster the communities' willingness to participate in PA management and in all decision-making processes.

Most of the surveyed people chose co-management (78.6%, see Table 2) as the preferred management model for the BIMA natural park. The Ordinal Logistic Model tried to understand whether there was any determinant factor when choosing the management model. Interestingly, one of the OLM results showed that people who had not collaborated with the NGO tended to choose management models done by authorities only, with no community participation. This reinforces the importance that the NGO has not only in informing and training the BIMA communities but also in promoting their integration in decision-making processes.

The environmental NGO also carries out many technical and scientific activities in the BIMA area, such as species monitoring and tagging of individuals. The fact that the NGO works both on scientific and community development activities put them in an intermediate position between the local communities and the authorities. Strong communication and collaboration between a diverse group of stakeholders is desirable for the sustainable management of any protected area [85]. Therefore, the NGO seems to be in the perfect position to act as facilitator of collaboration among stakeholders.

In the context of SIDS and developing countries, the involvement and participation of local communities is vital for equitable and sustainable management [27,80,86] and for the successful implementation of protected areas. Local non-governmental organizations seem to play a very important role in fostering community empowerment and participation, collaboration between different stakeholders and, consequently, act as facilitators of the implementation of protected areas.

6. Conclusions

The BIMA communities have shown a great capacity for collective action and for jointly working toward common goals. With the technical and scientific support of local environmental NGO, these communities submitted and obtained approval for the first civic-led protected area proposal in Cabo Verde, in what can be considered as the first act of co-design toward the BIMA natural park implementation. Such an integrative approach should be maintained in the upcoming phases of implementation of the natural park, as multi-stakeholder involvement is vital for an effective management plan.

Co-management is the preferred management model by the BIMA communities, which reinforces the importance of community participation and also shines light on the importance of assessing local people's perceptions and considering them when designing the management plans.

The activities developed by the environmental NGO seemed to have contributed to higher community support and PA implementation. NGO community development activities have raised environmental awareness in these communities and contributed to knowledge sharing in many socio-ecological topics. Moreover, the NGO has created a communication path between the communities and the authorities by being the voice, and often the communities' representative, and by simplifying the different technicalities of the PA's implementation, such as scientific studies or legal frameworks to the communities. Therefore, their role in PA implementation cannot be ignored.

One of the biggest challenges for protected areas, particularly in the SIDS context, is the lack of community participation in decision-making processes and the low rates of implementation, and the situation is no different in Cabo Verde. From this case, we can state some important factors to promote community involvement and improve implementation: (1) informed and educated communities have more positive attitudes and perceptions toward protected areas; (2) strong community support and involvement are necessary for an effective management plan; (3) assessing local people's perceptions and expectations is important for designing a context-adjusted and effective management plan; and (4) local non-governmental organizations can play a crucial role in community development, in promoting multi stakeholders' collaboration and, ultimately, in facilitating implementation.

One of the limitations of this study is that we could not determine to what extent the communities wanted to participate in decision-making processes about the natural park. This is important to determine, as the future management plan for the BIMA natural park should consider the level of community integration and participation in decision-making processes. Another limitation of this study is that we mostly surveyed down-level stakeholders. It is important to assess the perceptions of top-level stakeholders such as researchers, local authorities, and government officials about community participation in BIMA natural park management. A comprehensive assessment of stakeholders' perceptions facilitates the identification of future challenges and the development of effective solutions.

Therefore, the next research steps should be to assess the communities' desired level of participation and to identify other potential facilitators for the implementation of the BIMA natural park. Such assessment would make a great contribution to PA implementation in Cabo Verde and in other SIDS. It is also relevant to survey top-level stakeholders as well, such as government officials, and analyze their perspectives. In addition, it is important to research the existing mechanisms, from legal framework to management structures, that facilitate the integration of communities in PA management. Finally, a socio-ecological study should be conducted to explore how the implementation of the BIMA natural park would help improve the quality of life of local communities and, consequently, promote sustainable development.

Hopefully, this study case shed light on the importance that community empowerment has, together with NGO collaboration, for a better implementation of Protected Areas in Cabo Verde and SIDS. With limited publications on protected areas management and on community-led initiatives in Cabo Verde, this study makes an important contribution to increasing knowledge on the topic. It serves as a support document for future policymakers and it increases the number of scientific publications made about the archipelago.

Author Contributions: Conceptualization, N.S. and M.M.; methodology, N.S., M.M. and I.F.; software, N.S. and I.F.; formal analysis, N.S., R.S. and I.F.; investigation, N.S., A.V., A.S., R.S. and I.F.; resources, N.S., A.V., A.S., M.A.-R. and M.M.; writing—original draft preparation, N.S., A.V., R.S., I.F. and M.M.; writing—review and editing, N.S., A.V., A.S., M.A.-R., R.S., I.F. and M.M.; supervision, M.M. All authors have read and agreed to the published version of the manuscript.

Funding: This research was partially funded by the "Establishment of a Sustainable Community Development Model based on Integrated Natural Resource Management Systems in Lake Malawi National Park (IntNRMS) Project" under the Science and Technology Research Partnership for Sustainable Development (SATREPS) program provided by Japan Science and Technology Agency (JST) and Japan International Cooperation Agency (JICA) from 2020 to 2024 (JPMJSA1903).

Institutional Review Board Statement: Following Cabo Verde guidelines, as long as all respondents were informed and consent to participate in the social survey, a previous ethical approval of the study is not necessary.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy restrictions.

Acknowledgments: We thank the support from all communities of Baía do Inferno e Monte Angra Natural Park. Without your strong cooperation we would not have been able to conclude this study successfully. We also thank the reviewers of this paper for the constructive feedback and support. Finally, we thank Testu Sato, the leading editor of this Special issue, for his support.

Conflicts of Interest: The authors declare no conflict of interest.

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