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No: 606**

**Sustainable Finance in EU Overseas Territories**

An assessment of sustainable finance mechanisms in the Caribbean region

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This report is a preliminary draft report produced for JNCC. The Joint Nature Conservation Committee (JNCC) is a statutory advisor to the UK government and devolved administrations. The report contains a preliminary rapid literature assessment and analyses and does not constitute a comprehensive assessment of all available literature. Any errors or inconsistencies are our own.

## Executive summary

The Institute for Environmental Studies (IVM) and Wolfs Company have composed this report in collaboration with the Joint Nature Conservation Committee (JNCC) to review the current status of sustainable finance in the Caribbean, including analyses of trends, obstacles, interventions and opportunities. Sustainable finance is the ability to secure a stable, sufficient and diverse mix of financial resources, and to allocate them in a timely manner and appropriate form, to cover the full costs of sustainable management of natural assets and biodiversity conservation. This ensures protected areas and other conservation programmes are managed effectively and efficiently, and guarantees the provision of goods and benefits to local stakeholders.

Sustainable finance is a critical component of nature conservation in the Caribbean, and this report defines the different mechanisms available to provide finance, alongside relevant examples and case studies in the Caribbean. The review of sustainable finance mechanisms and their applications is used to form recommendations and suggestions for improving financial sustainability in Caribbean Overseas Territories and other Caribbean islands. Though there is no 'one size fits all' or standard blueprint for optimal implementation of sustainable finance mechanisms, research suggests that community-centric approaches increase support and improve chances of stakeholder buy-in. Additionally, on a regional level there are many benefits to Caribbean islands working collaboratively and utilising an island network to pool resources and capacity. Finally, working on standards to monitor, measure and communicate impacts is an opportunity to improve investment in nature management.

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# 1 Introduction

## 1.1 Background

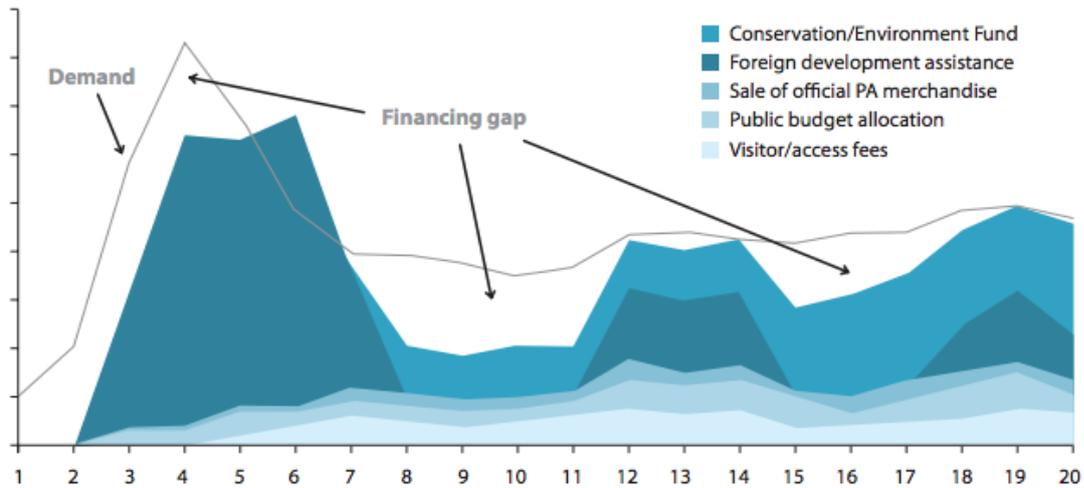
Small Island Developing States (SIDS) in the Caribbean depend heavily on their marine and terrestrial ecosystem services for economic prosperity. Industries such as tourism, agriculture and fisheries rely on healthy marine and terrestrial ecosystems. The biodiversity these islands contain is rich and unique and should be considered as an important natural asset that supports socioeconomic welfare (McIntosh & Renard 2009). SIDS generally undergo severe environmental pressures caused by, amongst other factors, coastal development on limited land surface, increasing numbers of visitors, and negative effects of a changing climate. These pressures lead to losses in ecosystem services that have notable economic and environmental implications. For instance, degraded coastal ecosystems are less attractive for tourists, face decreasing fish production, and lose their capacity to protect coastal areas. Over time, the loss of these valuable ecosystem services leads to a reduction in income to SIDS' national economies (CBD 2014). Managing and protecting ecosystems ensures the long-term provision of services that deliver societal benefits. In order to effectively manage natural resources, sufficient funding streams, such as those via sustainable finance mechanisms (SFMs) need to be established.

The concept of sustainable finance is used in different contexts and has varying definitions. In the context of this report, sustainable finance is used as a synonym of financial sustainability. Financial sustainability is here understood as the ability to secure a stable, sufficient and diverse mix of financial resources, and to allocate them in a timely manner and appropriate form, to cover the full costs of sustainable management of natural assets and biodiversity conservation (both directly and indirectly), to ensure that protected areas and other conservation programmes are managed effectively and efficiently, and to guarantee the provision of goods and benefits to local stakeholders (adapted from CBD 2017). SFMs are the individual mechanisms that contribute to the overall goal of financial sustainability. Sustainable finance mechanisms garner revenue from a range of sources (i.e. governments, the public, NGOs, private sector) and can therefore be classified in different ways. In this report, SFMs are grouped into categories depending on their relationship with the market(s).

## 1.2 Problem definition

The concept of sustainable finance is used in different contexts and has varying definitions. In the context of this report, sustainable finance is used as a synonym of financial sustainability. Financial sustainability is here understood as the ability to secure a stable, sufficient and diverse mix of financial resources, and to allocate them in a timely manner and appropriate form, to cover the full costs of sustainable management of natural assets and biodiversity conservation.

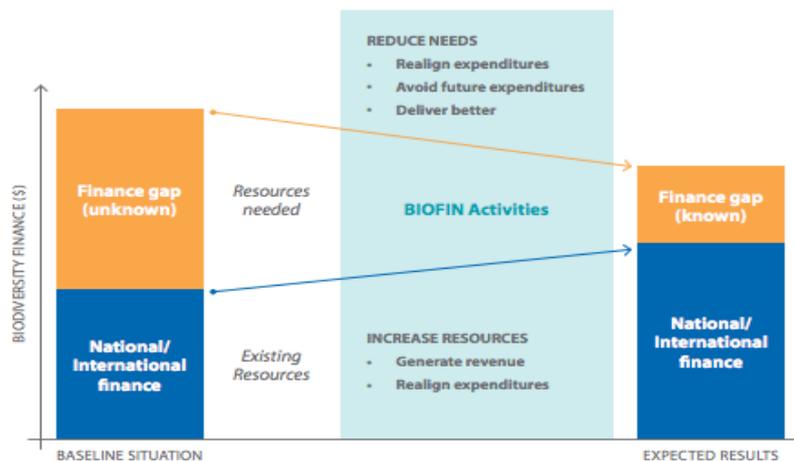
Sustainable finance is a potential solution to a problem that afflicts nearly every conservation effort: the finance gap. The finance gap, also called the funding gap, is the difference between finance supply and finance demand. The finance gap forces environmental managers to make difficult choices, since they cannot fund every desired action, thereby hampering effective management. As shown in Figure 1, the finance gap can fluctuate over time, and at some points, supply can even overtake demand leading to a surplus rather than a shortage of funds. The supply of funding can come from numerous sources, which will vary in availability and stability. For example, the foreign development stream in Figure 1 is only available in 'bursts', whereas, visitor and access fees and budget allocation remain relatively constant.



**Figure 1.** Theoretical supply, demand and resulting gap of financing for conservation. The finance gap can fluctuate over time and supply of funding can come from numerous sources (UNDP 2016).

Because of the explicit ambitions in the Caribbean in terms of sustainable management and financing, the finance gap is a pronounced challenge in the region. For example, in 2013 the [Caribbean Challenge Initiative](#) declaration was signed, in which Caribbean countries and overseas territories (OT) came together to pledge protection of 20% of marine and coastal areas by 2020. This pledge is ambitious, not only for its large promise, but also because it explicitly declared that those protected areas should be sustainably financed. This commitment clearly shows the collective desire to implement sustainable finance in the Caribbean region (CBD 2014).

To minimise or close the finance gap, financial planners can either decrease costs or increase funding, as pointed out in Figure 2. Cost reduction reduces funding demand but is rarely able to close the finance gap, especially in combination with maintained enforcement and management quality. Innovative funding streams are therefore needed to address the finance gap and will be the focus of this report.



**Figure 2.** Activities to minimise the finance gap can focus on reducing costs and increasing funding. Figure from Biodiversity Financing Network (UNDP 2016).

### 1.3 Research questions

Creating a system of sustainable financing can alleviate the finance gap. However, there is no blueprint or scientifically validated protocol for implementing SFMs. With the objective to understand the utility of sustainable finance as a means to increase conservation, and preserve biodiversity in the Caribbean islands, the research questions this report aims to address are as follows:

*Main research question:*

**How can sustainable financing be effectively implemented to support sustainable management solutions that deliver multiple social, economic and environmental benefits through the long-term preservation and restoration of natural capital in EU Caribbean small island overseas territories?**

*Sub-questions:*

- Which SFMs in the Caribbean islands are used and what lessons can be learned from the implementation of these SFMs, considering conditions, stakeholder involvement, motivations and communication?
- What are the main obstacles for each type of mechanism as seen in the Caribbean islands?
- What are the opportunities for interventions for (more effective) sustainable financing in the Caribbean islands?

### 1.4 Methodology

To answer the research questions, first a literature assessment was conducted to compile an inventory of SFM applications in Caribbean SIDS for nature conservation and environmental management. From this rapid assessment, it was then determined which locations and mechanisms were suitable for case study analysis; based on data and literature availability and the diversity and innovativeness of SFM application.

Case study sites were selected for their specific relevance to JNCC's operational remit and whether they presented key lessons to be drawn upon. The case studies are described in detail and analysed using a conceptual framework, the sustainable finance framework Eco<sup>2</sup>Fin (explained in Chapter 2). Throughout the research process local experts on specific SFMs were approached to draw out finer details on the application of approaches.

### 1.5 Structure of the report

The report is structured as follows. Chapter 2 defines the different types of SFMs and introduces the sustainable finance framework Eco<sup>2</sup>Fin. The following chapters elaborate on each category of SFMs. The mechanisms are separated into non-market SFMs (Chapter 3), direct market SFMs (Chapter 4), indirect market SFMs (Chapter 5) and financial mechanisms focusing on for-profit investments related to nature management (Chapter 6). Each chapter systematically discusses the SFMs and highlights key Caribbean examples in separate text boxes, or include an in-depth discussion of specific case studies. Chapter 7 concludes with a discussion of emerging trends, obstacles and interventions, regional opportunities and suggestions for future work in sustainable finance. A glossary with the most important terms in the domain of sustainable financing are listed in the Appendix.

## 2 Concepts and tools

### 2.1 Categorisation of Sustainable Finance Mechanisms

The 12 SFMs that are described in this report are separated into four categories, based upon their relationship with the market. The four categories are non-market, indirect market, direct market and financial mechanisms; categories and associated SFMs are presented in Table 1.

#### 2.1.1 Non-market mechanisms

Non-market mechanisms are traditional, well-established, forms of funding that are generally government based; such as direct allocations of the government budget, fines and damage assessments, and debt for nature swaps. Grants and donations can come from NGOs, companies, individuals or government. Conservation trust funds are non-governmental and financed from various revenue sources. In 2010, Global Canopy estimated the relative contribution to global conservation finance from non-market, indirect and direct market mechanisms. Calculations found the majority of conservation finance (76%) came from non-market sources (Parker *et al* 2012). Non-market SFMs are generally seen as a steady source of funding, although flows can vary among political cycles (e.g. government funding) or economic fluxes (e.g. private donations).

#### 2.1.2 Indirect market mechanisms

Indirect market mechanisms focus on creating a link between environmental benefits and markets through product or service labelling or certification. These schemes internalise environmental externalities<sup>1</sup> and command a price premium for green credentials, thereby encouraging the sustainable production or delivery of goods and services that create value in the market. Indirect market mechanisms have been shown to provide around 15% of global biodiversity finance (Parker *et al* 2012). In principle, indirect market SFMs can be applied to most sectors. Globally, certification schemes are typically applied to commodity based industries such as fishing, forestry and agriculture, but certification schemes can also be applied to non-commodity based markets, such as tourism (Parker *et al* 2012; Best & Thapa 2011).

#### 2.1.3 Direct market mechanisms

Direct market mechanisms directly create markets for ecosystem services, explicitly distinguishing supply and demand sides of the market. The supply side represents the natural assets that deliver ecosystem services. The demand side represents the beneficiaries of ecosystem services, such as divers who enjoy coral reefs or local communities that benefit from watershed protection through the provision of clean drinking water. A dive fee, or payment for ecosystem service (PES) scheme, serves as an example. Offset schemes, which follow the 'polluter pays' principle, provide a market whereby organisations purchase credits to mitigate for environmental impacts. Direct market mechanisms, when compared to non-market and indirect mechanisms, constitute the smallest amount of conservation financing, 9% of the 2010 global total (Parker *et al* 2012). These mechanisms are still relatively small scale in their application, but significant opportunity exists for innovation and greater involvement of local communities in their development.

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<sup>1</sup> Externalities are costs borne by third parties who are not taking part in the economic activity (Trucost 2013).

## 2.1.4 Financial mechanisms

Financial mechanisms include for-profit investments directly linked to nature management impacts (Spergel & Moye 2004; TNC 2001). These investments can flow for example via so-called green bonds, project specific investments or participation in nature based businesses. This type of conservation finance is still in its infancy, but provides favourable opportunities due to applicability at different scales, the wide range of sectors that can be involved, and the amount of funding that can be generated.

**Table 1.** Categorisation of sustainable finance mechanisms. Adapted from Spergel and Moye (2004), UNDP (2016), TNC (2001) and Gutman and Davidson (2007).

Category	Mechanism
Non-market	Direct allocations from government budget
	Fines and damage claims
	Grants and donations
	Debt for nature swaps
	Conservation trust funds
Indirect market	Certification
Direct market	User and nature fees
	Payments for ecosystem services
	Biodiversity offsets
	Carbon offset
Financial	For-profit investments linked to nature management (e.g. conservation and restoration of natural systems – including biodiversity)

## 2.2 Eco<sup>2</sup>Fin: An Ecosystem Services Framework for Sustainable Finance

A successful sustainable finance strategy manages to capture sufficient funds to guarantee the financial sustainability of conservation programmes. To achieve this, a well-functioning system requires that:

1. Beneficiaries truly receive the ecosystem services provided by the ecosystem.
2. Beneficiaries of ecosystem services pay for the benefits they obtain.
3. These payments are received by those charged with ecosystem management and stewardship.
4. Managers/stewards have the capacity to address threats posed to ecosystems.
5. And beneficiaries receive appropriate rewards for behavioural changes that reduce ecosystem threats.

SFMs can help support well-functioning management systems that protect ecosystems and ensure economic, social and ecological benefits can be sustained long term.

To systematically analyse the above-mentioned requirements of a successful sustainable strategy, the sustainable finance framework [Eco<sup>2</sup>Fin](#), developed by Wolfs Company (Luján Gallegos 2015), will be used. Eco<sup>2</sup>Fin is a conceptual framework that integrates the concepts of The Economics of Ecosystems and Biodiversity initiative (TEEB 2010) and the Daily loop (Daily *et al* 2009) into one framework. TEEB focuses on economic valuation of ecosystem services, and the Daily loop incorporates ecosystem services in a decision-making framework. The framework also follows certain steps applied by the Biodiversity Finance Initiative ([BIOFIN](#)), which is a global partnership that develops and pilots an approach and methodology to assist national governments to increase biodiversity financing on a national scale (UNDP 2016).

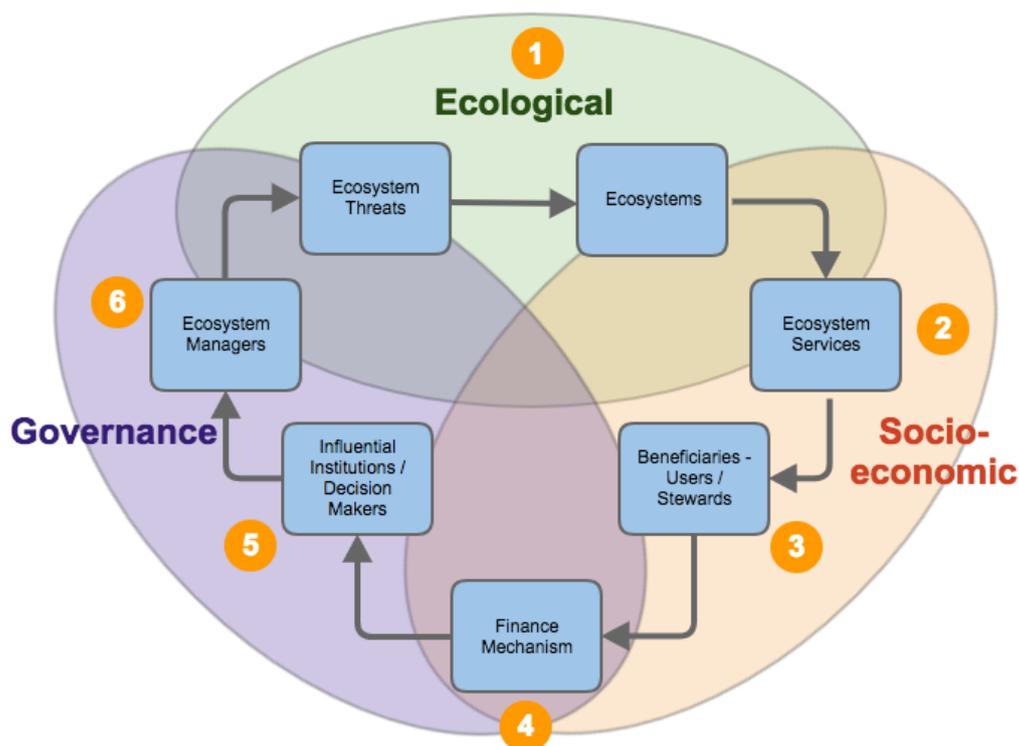
The framework covers the ecological, socioeconomic and governance contexts of sustainable financing of nature conservation and follows 10 steps, which are summarised below, in two phases, namely: contextual scoping and funds flow analysis. This methodology is based on the premise that a successful sustainable financing strategy needs to identify context-specific obstacles for financing instruments and generate appropriate interventions on that basis.

### 2.2.1 Contextual scoping

The *contextual scoping phase*, as shown in Figure 3, is conducted through the following steps:

1. Identify ecosystems in a relevant protected area or conservation programme.
2. Assess the services delivered by these ecosystems.
3. Identify the beneficiaries of these ecosystem services.
4. Evaluate existing and potential financing streams.
5. Identify influential people and decision makers.
6. Identify the ecosystem managers.

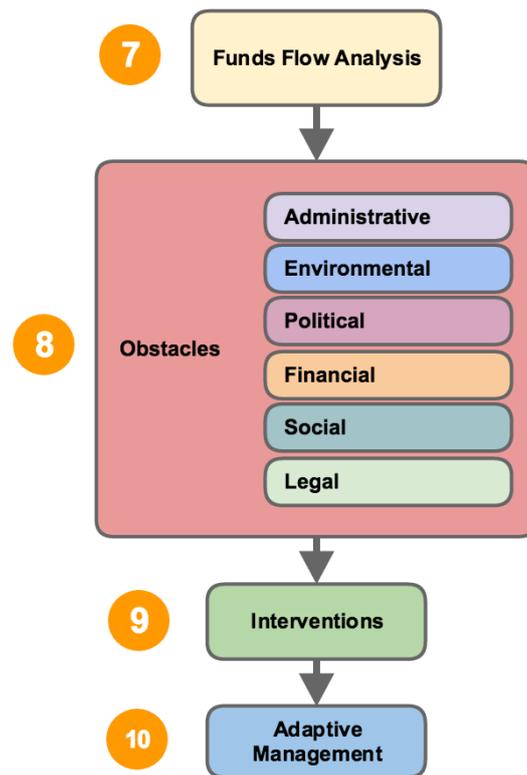
For the analysis of the case studies in this study, the focus will be on the socio-economic and governance domain of the framework, more specifically the beneficiaries and ecosystem manager nodes. The stepwise approach presented in the framework simplifies complex processes into manageable steps to identify financial streams, obstacles to implementation, and suitable interventions. Previously, the framework has been applied in pilot studies conducted in Bonaire and by the Gulf and Caribbean Fisheries Institute (GCFI) in the Turks and Caicos Islands; demonstrating its applicability in understanding designing sustainable finance strategies in the Caribbean (Sewell 2015; Lujan *et al* in press).



**Figure 3.** Phase 1 of the Eco<sup>2</sup>Fin framework consists of contextual scoping. The steps that are included in this phase are: 1) identify relevant foci ecosystems, 2) assess the services delivered by these ecosystems, 3) identify beneficiaries of these ecosystem services, 4) evaluate existing and potential finance streams, 5) identify influential people and decision-makers, 6) identify ecosystem managers charged with managing ecosystem threats.

### 2.2.2 Funds flow analysis

Due to the variety of SFMs, there is no 'one size fits all' approach to implementation. Each mechanism can be applied in a number of ways, and involve a variety of stakeholders. For this reason it is necessary to conduct context specific analyses to assess how SFMs potentially function in a particular case. The funds flow analysis phase of Eco<sup>2</sup>Fin, depicted in Figure 4, involves an in-depth assessment of the functioning of the socio-economic and governance realms identified through the contextual scoping framework (Figure 3). This analysis focuses on priority finance streams, and hence, on a limited number of relevant beneficiaries. The following steps of the process are demonstrated in Figure 4 below.



**Figure 4.** Phase 2 of the Eco<sup>2</sup>Fin framework: funds flow analysis. The steps that are included in this phase are: 7) determine how financial resources flow from beneficiaries to ecosystem managers, or amongst beneficiaries, 8) identify existing or potential obstacles to implementation, 9) analyse possible interventions to address the obstacles, 10) identify next steps to implementing adaptive management.

The application of this analytical framework identifies obstacles related to implementation of current (and potential) finance streams. These obstacles can be administrative, environmental, political, financial, social or legal in nature. The details of each obstacle category are described in Table 2. After identifying obstacles affecting the establishment (or outcome) of a SFM, targeted interventions can be designed to improve system management. Interventions vary and can include: collecting revenues from beneficiaries, increasing efficiency, removing legislative barriers (or creating new legislation), compensating local users of ecosystem services for limited or reduced access to services, and building awareness and capacity amongst key stakeholders.

Since sustainable finance strategies are cyclical and iterative, there is no 'end-point' where financial sustainability is accomplished. Sustainable financing can be characterised as a continuous, iterative and adaptive management challenge, rather than a one-time improvement. Adaptive management involves repeated monitoring, learning, changing and improving upon the system. This type of management increases knowledge over time, and includes both reactive and proactive actions (Rist *et al* 2013). The Eco<sup>2</sup>Fin framework can be applied by many different stakeholders such as: investors, government employees, non-profit organizations, conservation managers and researchers, to optimise their financing strategies.

**Table 2.** Description of the different obstacles that can arise when implementing SFMs. Adapted from Lujan Gallegos *et al* (2005) and Sewell (2015).

Obstacles	Description
Administrative	Ease, cost of enforcement and implementation can contribute to administrative barriers. These include, the complexities of coordinating and monitoring SFMs; leading to high transaction costs.
Environmental	Sustainable finance can lead to negative outcomes, such as greenwashing or increased impacts from tourism. Additionally, the environment may present challenges, such as spatial and geographical characteristics.
Political	The degree and reliability of government's support, the transparency in governance decision making and public trust in governance systems.
Financial	Lack of finances can be a barrier to implement or sustain a mechanism, this can be exacerbated by economic fluxes, such as the 2008 economic downturn.
Social	Social impacts of ecosystem conservation can lead to social barriers if there is unwillingness, or inability, to cooperate. Activities should be equitable and legitimate to reduce social barriers.
Legal	Mechanisms must comply with national laws and regulations, in some cases new laws must be passed which can be time consuming and costly.

### 2.2.3 Systematic analysis of SFM

In the following Chapters, the four main categories of sustainable financing mechanisms will be addressed. Each SFM will be described in terms of the following characteristics:

- Type of mechanism.
- Source(s) of revenue.
- Collectors of funds.
- Reason why funds are paid.
- Who manages the funds and how?
- What the funds used for?
- Common obstacles to implementation.

Several Caribbean examples for each mechanism have been compiled and are presented in the Appendixes. Most sections include a text box presenting a more detailed case study, and a few comprehensive cases are described and analysed using the Eco<sup>2</sup>Fin model.

## 3 Non-market mechanisms

### 3.1 Direct allocations from government budget

Main characteristics

- **Name of mechanism:** Direct allocation from government budget.
- **Source of revenue:** Funds collected by the government through taxes, levies, fees and government managed companies.
- **Collectors of funds:** Government department, organization or conservation trust fund.
- **Reason why funds are paid:** Funds collected via taxes, levies and fees are paid because they are made a mandatory obligation. In some instances, the charges that feed the government budget that is allocated to nature management do not have a link with nature. In other cases, the revenues being allocated come from charges to users of the services who benefit from conservation of natural systems.
- **Who manages the funds and how:** The Ministry of Finance is generally the administrator of general government budget, and then allocates funding to the organizations responsible for nature management. Special legislation is often needed to earmark funds for nature management, to avoid financial resources ending up in central budgets. When funds are earmarked, a separate body, or specific governmental department or organization may oversee management of these funds.
- **What are the funds used for:** For operational costs of nature management organizations or for specific programmes. For example, community-based forest protection programs, to buy land to create protected areas, or for sustainable management and development of sectors reliant upon natural resources.
- **Common obstacles to implementation:** Lack of financial management capacity of nature management organizations impairs their ability to prepare financial plans and monitor the returns of financial investment in nature management. This in turn makes it difficult to increase budget allocation from central government (Flores and Bovarnick, 2016). Drawing up legislation to earmark funds can be a lengthy process and there is generally public resistance against tax increases. Unless funds are earmarked, there is no certainty in the level of government funding through the years. Government budgets are usually insufficient to finance all activities required, meaning there is often a funding gap (TNC 2001).

Different types of direct allocation from government budget have been identified in the Caribbean. Some cases represent a more traditional use of the mechanism, namely collecting funds via a fee or levy that are then allocated to a conservation fund that is managed by a board, as described in Box 1 for the Cayman Islands. More innovative ways to collect and use funds implemented in the Caribbean include; community-based forest protection, paid for with profits made by state-owned, but semi-autonomous, companies and assigning farm managers to state-owned land to rehabilitate degraded areas and conserve natural vegetation. All examples are described in more detail in Appendix B.1.

**Box 1.** Cayman Island's environmental protection fee

Since 1997, travellers leaving the Cayman Islands by air or cruise ship are charged an Environmental Protection Fee that is invested in environmental conservation and protection. Fees are collected by the government via tourist taxes. The original idea was to set up a separate fund to be managed by a Board of Trustees, including government and private sector (Connolly 2012). However, this idea was not executed at that time, and due to the lack of earmarking of the revenues, collected fees became part of the government's General Revenue Fund and have been used for other purposes; such as road and infrastructure development and disaster clean-up (Connolly 2012; TNC 2001). In 2013, the National Conservation Bill was passed, which ensures that funds collected through the Environmental Protection Fee are diverted to the Environmental Protection Fund (Government of the Cayman Islands 2013; Caymanian Bar Association 2013). However, personal communications have revealed that this bill is still subject to further improvements. For example, the establishment and operationalisation of a National Environmental Council that is responsible for the management of the fund, as stated in the bill, is not yet at the envisaged functioning level (Government of the Cayman Islands 2013). Nevertheless, the fund does finance conservation projects, and recently US\$6 million of the fund has been allocated to buy land to create a terrestrial protected area (Whittaker 2016).

## 3.2 Fines and damage claims

### Main characteristics

- **Name of mechanism:** Fines and damage claims.
- **Source of revenue:** Compensation payments imposed for environmental damage. Fines are usually penalties for predetermined illegal behaviour (such as poaching or anchoring in MPAs). Damage claims are incident based and the level of payment is determined based upon the extent of harm to the environment.
- **Collector of funds:** The legislative arm of the government is usually tasked with setting fines, while damages are pursued by the relevant authority or organization under whose jurisdiction the damaged area falls. Police or nature managers with policing power are responsible for enforcement and monitoring of illegal behaviour.
- **Why funds are paid:** Funds are collected to mitigate (and deter further) damages from harmful behaviour (i.e. anchoring in MPAs) or pollution incidents (i.e. oil spills).
- **Who manages the funds and how:** Funds are managed by government officers or legal actors involved in the regulation and enforcement process.
- **What are the funds used for:** Restoration of ecosystems directly harmed, though sometimes funds are redirected to central budgets, or never reach ecosystem managers.
- **Common obstacles to realising the mechanism:** Limited human or financial capacity of nature managers for monitoring and enforcement of harmful behaviour. The values set for penalty fines may not be sufficient to deter harmful behaviour. Lack of economic and biological data to determine the value of harmed ecosystems. Absence of damage assessment frameworks prevent accurate estimation of appropriate amounts for claims for damages. Legal backlash from fined organizations can increase transactional costs. These mechanisms can be inconsistent funding sources, due to irregularity in payments.

In the Caribbean, the application of fines and damage claims is relatively limited. Fines are implemented for small offenses, such as for anchoring in the US Virgin Islands and avoiding mooring fees in the British Virgin Islands, and damage assessment claims can be used for

larger incidents such as oil spills in Trinidad and Tobago. Box 2 describes examples from St Maarten and St Eustatius, two Dutch OTs that use economic valuation as a basis for determining the loss of value that results from damage to marine ecosystems. A detailed description of all examples is included in Appendix B.2.

### Box 2. Damage claims in St Maarten and St Eustatius

St Maarten and St Eustatius are Dutch OTs that have a small land area with economies that are reliant on tourism. St Maarten enacted its first MPA in 2010, the proposition was at first unpopular, but after ecological and economic studies were conducted, alongside stakeholder interviews and involvement, the park was established (Kushner *et al* 2012; White *et al* 2007). Factors threatening the effectiveness of MPAs include lack of awareness by commercial ships and private boats that continue to anchor on the protected reef, and limited funding to regulate undesirable activity. In St Eustatius, which has the largest port in the Netherlands Antilles, an economic valuation found an estimated coral reef value of US\$400 for each square meter of substrate (Bervoets 2010; White *et al* 2007). Bervoets reported seven illegal anchoring incidents in 2008 and 2009 which resulted in damage to coral. One incident resulted in prosecution and damage reparation payments of ~US\$2,700 paid to the prosecutor and US\$700 to the marine park for investigation costs (Bervoets 2010). Another example from 2012, provided through personal communication, was when the cargo vessel M/V Crown Opal grounded in a MPA in St Maarten. Using results from economic valuation, a settlement of US\$25,000 was reached. Although fine amounts and procedures are formalised in legislation, the Prosecutor's Office ultimately sets the amount of the damage claim and decides who receives the damage payment. The compensation payment therefore is not automatically transferred to the MPA managers.

## 3.3 Grants and donations

Main characteristics

- **Name of mechanism:** Grants and donations.
- **Source of revenue:** Non-refundable contributions from individuals, companies, NGOs, and bilateral or multilateral development entities.
- **Collector of funds:** Nature managers, government agencies, NGOs, or entities supporting them in their work.
- **Why funds are paid:** Funds are paid based upon philanthropic purposes. For example, to promote conservation, to enhance reputation, or to meet global or national requirements.
- **Who manages the funds and how:** The funds are managed by the party collecting funds and used for the purpose stipulated in the instrument providing the grant or donation. This could be done, depending on the conditions of the grant or donation, by including the funds as part of the operational budget or allocating them to fund a particular project.
- **What are the funds used for:** Generally for a specific purpose (i.e. delivering conservation programme objectives), covering operational costs, seed funding for new projects, or capacity-building.
- **Common obstacles to implementation:** Caribbean projects are often small scale and may not attract global or large scale grants. Funds are not consistent, and often have specific project delivery requirements and may not be allowed for use in covering operational costs. Grants can sometimes be restricted in what the money can be used for. The administrative burden of applying for grants, or donor's

reporting requirements, can discourage some organizations from accessing this type of mechanism.

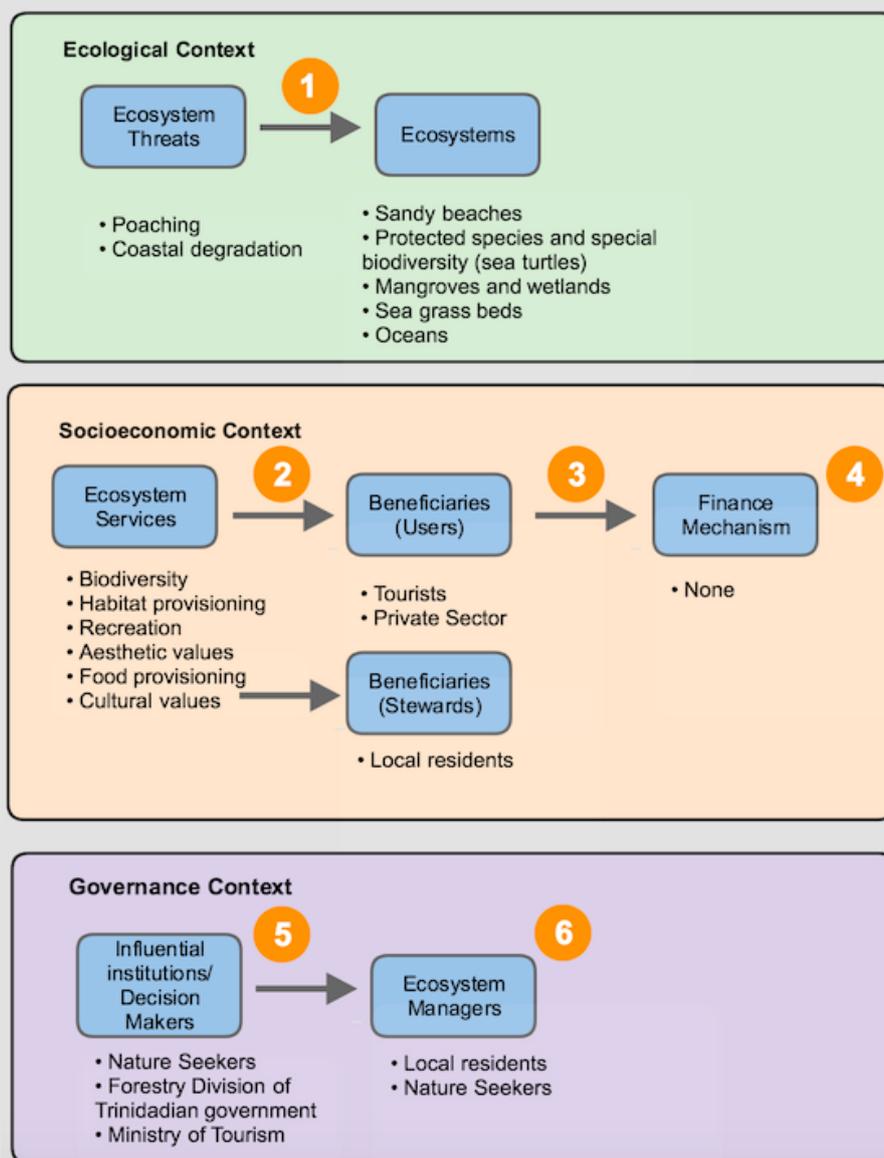
Grants and donations are a common way to finance environmental management and conservation. These can be provided by multilateral donors, bilateral donors, international NGOs, philanthropic foundations, corporations and individuals (TNC 2001). Multilateral donors include inter alia the World Bank, Global Environmental Facility (GEF), United Nations and the European Community. In the Caribbean, examples have been found where the private sector is involved in donation (often for reputational reasons) or single donors (often for philanthropic reasons). The examples are described in Box 3 and Appendix B.3. Section 3.4 presents an in-depth case in Trinidad and Tobago.

**Box 3.** Tax-deductible donations in Saba Marine Park

The Saba Marine Park was created in 1987 and is governed by the [Saba Conservation Foundation](#) (SCF) who sought making the park self-sufficient through a variety of financing strategies (TNC 2001; Geoghegan 1998). One finance stream is donations that are generated via the support group 'Friends of the Saba Conservation Foundation', which encourages park visitors to register and commit to regular donations (TNC 2001; Geoghegan 1998). This organization is registered in the US under IRS 501c3, which means US visitors can give tax-deductible contributions and several thousand dollars is raised annually (TNC 2001; Saba Conservation Foundation 2008). The tax-deduction method is attractive for private donations, with funds flowing directly to the park management. However, the scale of funding is limited and the park cannot run solely on visitor donations (Saba Conservation Foundation 2008).

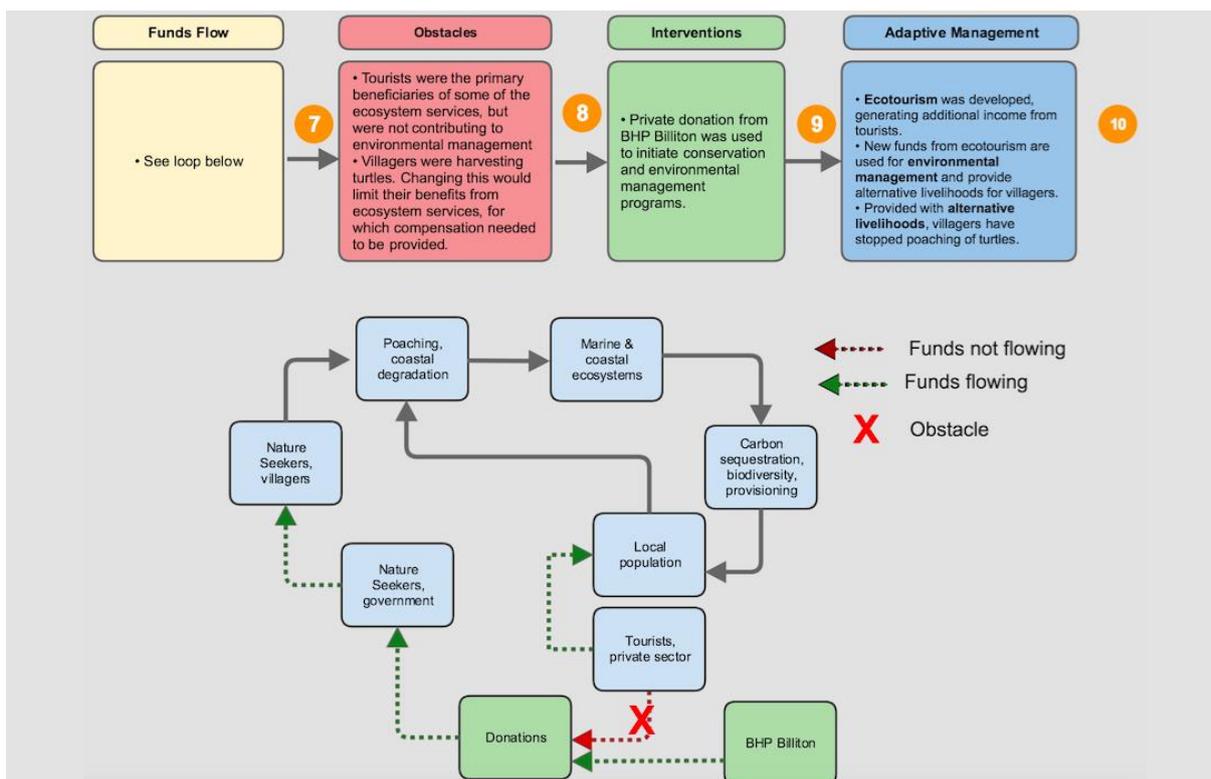
### 3.4 Case study: Turtle Village Trust

The [Turtle Village Trust](#) (TVT) in Trinidad and Tobago was created in 2006 to support turtle conservation in parallel with sustainable livelihood development for local communities through increased tourism (Turtle Village Trust 2017). The TVT focuses on the Matura region of Trinidad, where approximately 1,600 Trinidadians live. Figure 5 presents the context of the case study using the Eco<sup>2</sup>Fin framework.



**Figure 5.** Contextual scoping for the Turtle Village Trust in Trinidad and Tobago.

Figure 6 shows the results of the funds flow analysis. The obstacle stemming from lack of funds was overcome by the financial donation from BHP Billiton, and the creation of the TVT. The TVT is a unique collaboration between the Nature Seekers, a bottom-up organization made up of local villagers, and BHP Billiton, a multinational mineral extraction company.



**Figure 6** Funds flow analysis for the Turtle Village Trust in Trinidad and Tobago.

BHP Billiton chose to pursue the partnership with Nature Seekers because of the company's stewardship policy that requires them to engage in community outreach and support in areas where they operate. BHP had begun extraction operation in the north-east coast of Trinidad, where Nature Seekers were working with local communities to conserve turtle populations. Nature Seekers approached BHP to offer the opportunity to become a corporate partner, after realising funding potential, and identifying the risk posed by environmental impacts from operations could potentially hinder conservation efforts. The coalition was beneficial for BHP, who fulfilled corporate stewardship agreements, and for Nature Seekers, who increased revenue for the TVT project. TVT later sought to expand the partnership to include government entities: the Ministry of Tourism is currently part of the alliance and forestry and wildlife officials work in tandem with the TVT (Shah 2011). Presently, TVT support a thriving eco-tourism industry due to success in conserving turtles, accompanied by infrastructure development and services such as tours and guest lodges (McIntosh & Renard 2009). Funds are used to develop eco-tourism and cover costs of Nature Seekers conservation, education and scientific research.

A key lesson drawn from this case, is the importance of using the available financing to effectively address the identified threats to the ecosystems. In this case, to motivate and sustain a behavioural change from local communities, it was key to address the foregone benefits from ecosystem services they would face when abandoning turtle poaching. By using funds to finance eco-tourism ventures, TVT provided alternative livelihood opportunities that centred around preserving habitat and biodiversity. The situation described here is common throughout the Caribbean, where local communities rely on the environment for income, but may not use resources sustainably. The unique partnership between a corporate sponsor and local NGO provided finance and expertise to radically change the way the community interacted with their environment, and instated a SFM.

### 3.5 Debt for nature swaps

#### Main characteristics

- **Name of mechanism:** Debt for Nature Swaps (DNS).
- **Source of revenue:** Foreign governments and NGOs that cancel or buy debt from a national government.
- **Collector of funds:** The national government receives the funds, by way of reduced debt repayments, and directs these savings into conservation trust funds (CTF) or foundation.
- **Why funds are paid:** DNS is a financial trade where foreign owned debt is transferred into national conservation spending at a lower rate for the indebted country. Foreign governments and NGOs can be motivated to swap debt for nature to enable conservation goals to be met; goals which are often embedded in the ethos of an organization or are incorporated into legislation. For the receiving government, a DNS is attractive because it saves government treasury money by eliminating interest rates paid on the debt, and provides the nation with the ability to restore ecosystems that supply multiple benefits.
- **Who manages the funds and how:** Non-governmental, independent boards or finance managers. See Section 3.5 for more information on CTFs.
- **What are the funds used for:** CTFs that capture the funds provide grants or donations to sponsor conservation or environmental management activities. The funds can also be used to buy sites to establish protected areas and fund their management.
- **Common obstacles to implementation:** Only bilateral public debt is suitable for a DNS. Negotiating a DNS involves complicated and confidential procedures and can therefore take a long time to establish, leading to high transaction costs and reduced efficiency (Conservation Finance Alliance 2003). For other obstacles, related to CTFs, see Section 3.5.

The 1991 Enterprise for the Americas Initiative (EAI) of the United States enabled DNS for Latin American and Caribbean countries that moved to open investment regimes (USAID 2014b), and enabled two DNS undertaken by Jamaica. Thanks to these DNS, US\$21.5 million has gone into the [Environmental Foundation of Jamaica](#) (EFJ) since 1992. However, contrary to the original plan, the fund did not become financially sustainable due to high operational costs of the parks depending on the EFJ, so other finance streams (such as visitor fees) were established to make up the shortfall. A third DNS was backed by the United States' [Tropical Forest Conservation Act](#) (TFCA) of 1998, which is modelled after the EAI (USAID 2014b; Sheikh 2016). The TFCA is intended to conserve tropical forests and strengthen civil society by establishing local foundations that support NGOs and local communities with small grants (USAID 2014b). Most of the TFCA agreements include funds raised by U.S.-based NGOs, such as The Nature Conservancy (TNC). The Club de Paris, which brings together the richest economies of the world, has taken on the role 'to find coordinated and sustainable solutions to the payment difficulties experienced by debtor countries' (Club de Paris, unknown). The main DNS that have taken place have been arranged with permanent members of the [Club de Paris](#) (Landreau 2013). More examples of DNS in the Caribbean are presented in Appendix B.4.

### 3.6 Conservation trust funds

#### Main characteristics

- **Name of mechanism:** Conservation Trust Funds (CTFs).
- **Source of revenue:** CTFs are multi-source funds, with finance streams coming from, government budgets, large grants or donations, or debt for nature swaps.
- **Collector of funds:** The Trust Funds collect and manage funds.
- **Why funds are paid:** Funds are allocated through philanthropic motivations, such as promoting conservation; by private organizations as part of corporate social responsibility (CSR) or for reputational reasons; from government budget allocation; or via debt for nature swaps.
- **Who manages the funds and how:** Non-governmental, independent boards or finance managers organise funds and set up CTFs to generate interest payments. CTFs can be managed as 'Endowment Funds' (meant to survive indefinitely), 'Sinking Funds' (which gradually run out) or 'Revolving Funds' (loans from fund are meant to be repaid) depending on how interest is collected and grants are allocated.
- **What are the funds used for:** CTFs provide grants or donations to sponsor conservation or environmental management activities at a national, regional or global scale.
- **Common obstacles to implementation:** Funds run out prematurely or are mismanaged (poor financial planning or asset management). Inadequate governance can also pose challenges to CFT management.

Conservation Trust Funds (CTFs) have been implemented in nearly all Caribbean islands nationally, as well as regionally (Caribbean Biodiversity Fund), or in groups; such as the [Dutch Caribbean Nature Alliance](#) (DCNA) Trust Fund (for examples see Appendix B, Section B5). In Central America, the Mesoamerican Reef Fund ([MAR Fund](#)) is another regional example that comprises the Caribbean side of four countries: Belize, Honduras, Guatemala and Mexico. CTFs originated as a means to manage funds obtained through debt for nature swaps, but have since been used to handle money from various of sources for different purposes (Bladon *et al* 2014). CTFs are attractive because funding sources can be diverse, they are independent of government influence, have greater freedom to define investment objectives, and they can enhance networks and capacities by bringing together different stakeholders with varying capabilities and interests. Box 4 discusses examples of involvement of the private sector in CTFs.

#### Box 4. CTFs and the private sector

CTFs sponsored by the private sector can be a win-win for conservation and companies alike. The Ocean Fund was set up by the Royal Caribbean cruise company and provides finance to marine conservation activities. Royal Caribbean prominently displays its environmental stewardship and philanthropy on its [website](#) (Royal Caribbean 2017) and benefits from positive corporate image and innovative partnership opportunities with environmental NGOs. The fund is used to support projects in areas that the cruise line visits, as conserving the environment which attracts tourists to their cruises is critical to the company's business interests.

The [Jamaica Environment Trust](#) (JET) fund received seed funding via a large donation by a private energy company. The JET Fund is also supported by NEM Insurance, a Jamaican insurance company which took out a large bond, retained the capital, and then pledged the interest payments from the bond to JET. This system allowed the insurance

company to fund conservation without losing any money by just donating interest payments. The Jamaican government has publicised that it welcomes investment from companies who contribute to the nations' social and environmental causes (McIntosh 2011).

## 4 Indirect Market Mechanisms

### 4.1 Certification

Main characteristics

- **Name of mechanism:** Certification.
- **Source of revenue:** Individuals or companies pay a price premium for a certified service or product. This premium is incorporated in the market price.
- **Collector of funds:** The business that voluntarily complies with predefined criteria set by the certification scheme, which serve as a form of non-statutory regulation.
- **Why funds are paid:** Consumers of the service or product pay a price premium due to preference for sustainable products, thus providing extra revenue to certified businesses. Certification is usually communicated to consumers via logos.
- **Who manages the funds and how:** The funds are managed by the certified business and associated suppliers. Maintenance of the certification standard is ensured by regular review and investigation by the certifying authority.
- **What are the funds used for:** To make the costs of compliance born by the businesses, pay for a periodic fee necessary to remain certified, and for implementing sustainable business practices in line with the certification standards, thus improving efficiency and profitability.
- **Common obstacles to implementation:** Limited access to resources such as capital and technology can hamper implementation of certifications standards. Lack of awareness at the business level on the business' current impact or dependency on the environment can be another obstacle to implementation. Lack of consumer demand for certified products and services can limit the size of the market and thus corporate income from the certified products and services.

Different types of certification currently utilised in the Caribbean have been categorised into environmental management by the tourism sector, beach management and sustainable food production. Two of the biggest schemes, Green Globe and Blue Flag, are discussed in Box 5 and Box 6. While there appears to be a lack of certification for the fisheries sector in the Caribbean, this presents an interesting opportunity that could be investigated in greater detail. Appendix B.6 presents and describes examples of certification currently implemented in the Caribbean.

Certification of the tourism accommodation sector is currently most prevalent in the Caribbean region. Best and Thapa (2013) consider the motives, facilitators and constraints of environmental management in this sector. Their results show that conserving natural resources is the top motive, in-house training on environmental management the top facilitator, and constraints mainly relate to costly implementation. Analysis reveals that the presence of an internal green champion in the hotel (a staff member with high interest in environmental protection) has a significant positive effect on the adoption of environmental management practices. Furthermore, investing in environmental management systems in the accommodations sector can be made economically viable through cost savings linked to reductions in utility bills and other operational efficiencies (Meade & Pringle 2001; Schram 1997; Rivera 2002).

**Box 5.** Green Globe certification scheme

[Green Globe](#) contains 44 criteria that are supported by over 380 compliance indicators that vary per type of certification, local factors, and geographical area. Key performance areas for companies adopting Green Globe principles include:

- Greenhouse gas emissions
- Energy management
- Management of freshwater resources
- Waste water management
- Ecosystem conservation and management
- Management of social and cultural issues
- Land use planning and management
- Air quality protection and noise control
- Waste management

One of many examples presented online by Green Globe (2017) concerns the Butterfly Beach hotel in Barbados. In this hotel, energy efficiency was improved by introducing LED lighting, using inverter air conditioning units and limiting the use of lighting during the morning. For waste management, they focus on the limited use and recycling of plastic and glass. They also encourage their guests to reuse towels and buy local, while the hotel itself prefers green suppliers and local business, in order to contribute to the local economy. Finally, the hotel also provides information on which souvenirs are unsustainable and illegal, such as coral.

**Box 6.** The Blue Flag certification scheme

The [Blue Flag](#) certification scheme was first introduced in France in 1985 and focusses on beach management. It is the most well-known beach certification scheme in the world and is run by the non-profit Foundation for Environmental Education that is based in Denmark (Botero *et al* 2014). Since Blue Flag is owned by an NGO, complex administrative processes needed to fit each country are avoided (Botero *et al* 2014). When a country wants to participate in the scheme, a non-profit organization called 'National Operator' must be registered. After organising a workshop, establishing a national Blue Flag committee, an assessment of the feasibility of the scheme, and implementation of a pilot phase, the 'National Operator' will be authorised to use the brand (Botero *et al* 2014). From that point onwards the 'National Operator' also functions as the manager of the scheme.

Currently, Blue Flag operates in the Caribbean in Puerto Rico and Dominican Republic. Different criteria are set-up per area type, categories being beaches, marinas and eco-tourism boats. Criteria are grouped into four categories. These are: 1) environmental education and information, such as displaying information related to local ecosystems; 2) water quality, such as complying with standards and requirements; 3) environmental management; and 4) safety and services related to first aid and a supply of drinking water. In total, there are 33 criteria for beaches, 35 for marinas and 45 for boats (Blue Flag 2017).

## 5 Direct market mechanisms

### 5.1 User and nature fees

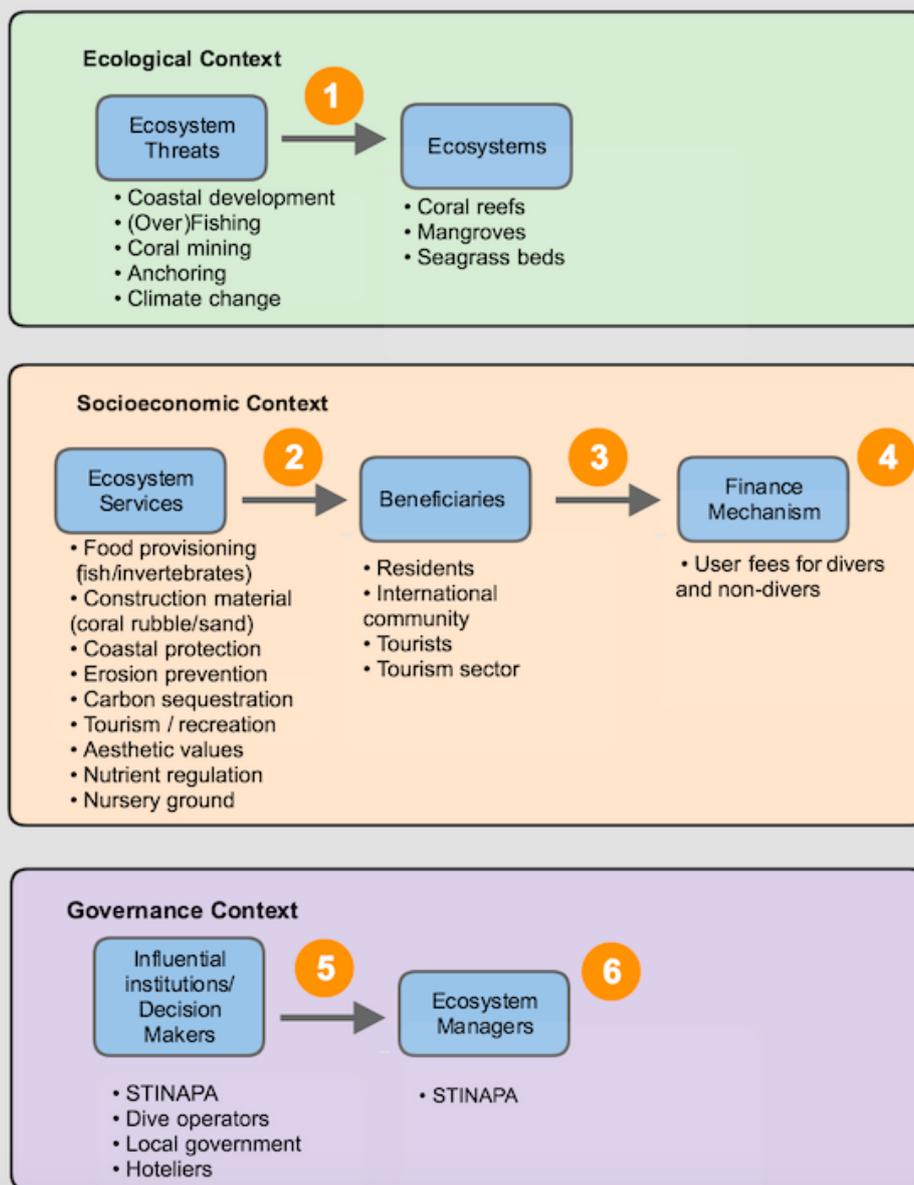
Main characteristics

- **Name of mechanism:** User and nature fees.
- **Source of revenue:** Tourists, divers and residents that pay a fee when visiting natural areas. These include dive fees and national park entrance fees.
- **Collector of funds:** Local NGO, government agencies, or local businesses (dive shops and hotels)
- **Why funds are paid:** Recreation and enjoyment of natural areas, such as coral reefs or forests. Willingness-to-pay studies, such as Thur (2010) and Barker and Roberts (2006), reveal that divers are willing to pay dive fees in the knowledge funds are used to conserve the ecosystems that they enjoy.
- **Who manages the funds and how:** Where fees are collected directly and earmarked, NGOs or government agencies manage funds. In some cases, it is appropriate to ensure mechanisms are in place that ensure funds are earmarked for ecosystem management.
- **What are the funds used for:** Monitoring and enforcement of protected areas, installation and upkeep of facilities, awareness raising activities, and running costs.
- **Common obstacles to implementation:** Fear from targeted industries that the increased prices (due to the fees) could drive tourism to other destinations. A lack of transparency on the use of funds can limit beneficiaries' willingness to pay fees. For residents, the long tradition of free access to the natural areas poses a cultural obstacle. The costs of administrating a fee system and administrative burden of earmarking funds for environmental conservation. Increases in tourist numbers can negatively affect natural areas.

User and nature fees are commonly utilised in the Caribbean region, especially dive fees and to a lesser extent also entrance fees to land-based national parks. An overview of user and nature fees implemented in the region is presented in Appendix B.7, and the next section (5.2) presents an in-depth case study for Bonaire. From the cases included, it seems NGOs are often the managing body. Interestingly, NGO schemes appear to charge higher fees compared to those managed by government. Underlying reasons for this could be that the government may be more subject and sensitive to opposition from targeted industries and residents or that management costs are being subsidized by government funds or that management is to a lower standard.

## 5.2 Case study: nature fees in Bonaire

The Bonaire National Marine Park (BNMP) covers 2,700ha and is operated by the Netherlands Antilles National Parks Foundation ([STINAPA](#)), a non-profit NGO (Thur 2010; TNC 2004). The BNMP was established in 1979 with support from WWF and the Dutch government. The park has a long history with the nature fee scheme. Figure 7 describes the context of the mechanism.



**Figure 7.** Contextual scoping for the nature fee scheme in Bonaire.

Figure 8 presents the results of the fund flow analysis. The main obstacle concerns the payment by beneficiaries for the services delivered by the BNMP. After initial investments during the establishment of the park, efforts were made to implement user fees, but this failed due to insufficient governance and opposition of the dive operators (Dixon *et al* 1993; Cooper 2011). The park ran out of money and protection activities became insufficient, turning the BNMP into a 'paper park' (i.e. in name only) by 1984.

In 1991, a study of Dixon *et al* (1993) revealed a positive willingness to pay for dive fees, after which the first fee of US\$10 was implemented. Accompanied by a financial injection to restart park activities, the park became the first completely self-funded MPA in the Caribbean (Thur 2010; TNC 2004; Kushner *et al* 2012; Cooper 2011). Changes were made to the Bonaire Marine Environment legislation, enabling the collection of fees by STINAPA, and ensuring that the fees were used for the upkeep and maintenance of the BNMP, education and outreach, research, monitoring surveys and enforcement (Cooper 2011; TNC 2004; DCNA 2015). Divers and other users pay the fee to dive shops and hotels, and the funds are collected daily by STINAPA (Uyarra *et al* 2010; Cooper 2011). Until 2005 the fee remained unchanged. A study conducted in 2002 (Thur 2010) revealed that the fees could be doubled without impacting visitation rates, thus the annual dive fee was increased to US\$25 dollar, despite initial opposition from some dive operators (TNC 2004).

Currently, due to rising operational costs, the income generated by the fees can no longer cover all management costs (van Beek *et al* 2015). Besides the lack of political and private sector support for an increase in the fee, limited awareness of the existence of the fee and a lack of compliance by family and friends of residents presents a challenge (Sewell 2015). Opportunities for increasing funding hinge on better communication, increased awareness of the benefits derived from the nature fee, and to implement an online fee collection system (Sewell 2015).

This case study demonstrates that implementing user fees requires an adaptive process to in ensuring long-term viability in the face of external forces, such as rising management costs. Ongoing stakeholder engagement is imperative to ensure acceptance and support.

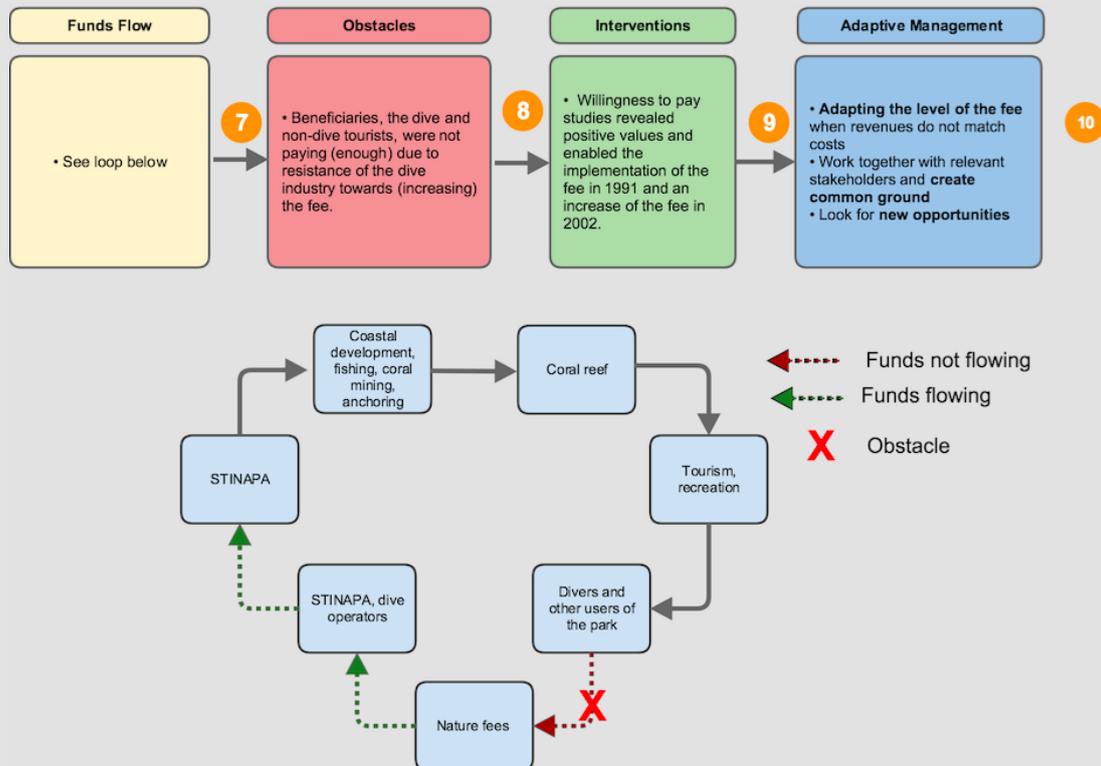


Figure 8. Funds flow analysis for the nature fee scheme in Bonaire.

### 5.3 Payments for ecosystem services

#### Main characteristics

- **Name of mechanism:** Payments for ecosystem services (PES).
- **Source of revenue:** Monetary compensation for securing certain ecosystem services, where suppliers who manage the flow of services are paid by beneficiaries.
- **Collector of funds:** NGOs or CSOs generally implement PES schemes, though they can also be (semi)government managed.
- **Why funds are paid:** Funds are paid to maintain the flow of ecosystem services that are used by the beneficiaries.
- **Who manages the funds and how:** The transaction organisation will collect the funds from the beneficiaries and use them to compensate the ecosystem service suppliers.
- **What are the funds used for:** Suppliers either refrain from detrimental behaviour (i.e. reduce polluting activities, stop deforestation) or participate in beneficial behaviour (i.e. reforestation).
- **Common obstacles to implementation:** Undervaluation of ecosystem services can lead to inadequate pricing. Unclear land or property rights can complicate PES schemes as land occupiers or tenants, and not necessarily owners, are usually the service providers. The often-long time-frames required for restoration activities to show results, means it can take many years before the benefits for services are fully realised; reforestation is an example of this. Poor land choice, such as opting for sites based upon reduced levels of opposition to activities, as opposed to selecting for maximum conservation benefits, can also be a problem.

Currently there are no PES schemes in place in the Caribbean islands, although there is potential to implement PES due to the interconnectedness of ecosystems in question (i.e. reef to ridge dependencies) and existing successful community conservation projects (McIntosh & Renard 2009; McIntosh & Leotaud 2007). McIntosh and Leotaud (2007) identify locations in Jamaica, St Lucia, Grenada, Trinidad and Tobago, and St Vincent and the Grenadines, considered suitable for PES schemes. Box 7 describes well-functioning PES schemes in Costa Rica, heralded as a leader in PES implementation.

#### Box 7. Successful Caribbean PES in Costa Rica

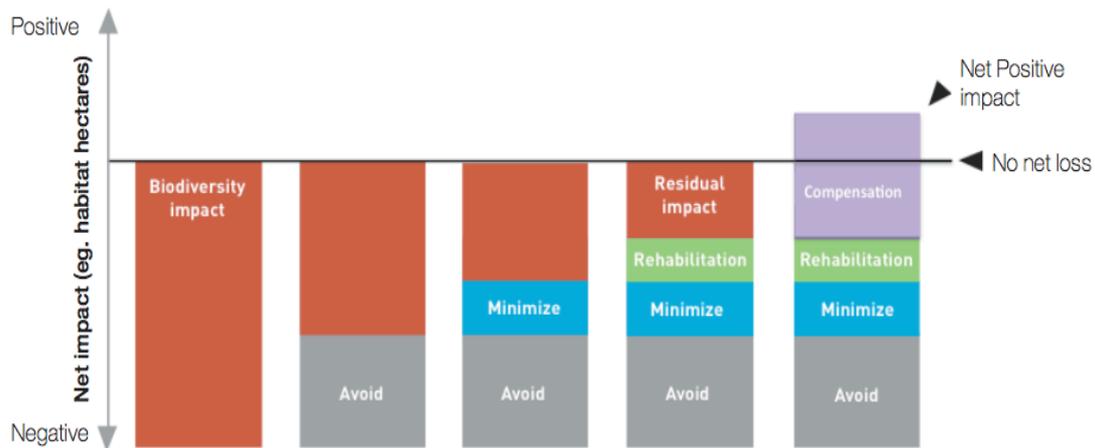
Costa Rica has formalised PES schemes into legislation that recognises services such as mitigation of greenhouse gas emissions, hydrological services, biodiversity conservation and provision of aesthetic landscapes for recreation and ecotourism (Pagiola 2006). PES is integrated into national legislation, such as the Forest Law. Landowners are contracted for service provisions, and the process is managed by the National Fund for Forest Financing ([FONAFIFO](#)). Funds for PES payments currently come from a mix of sources (fossil fuel sales tax, water tariff, grants and local service users) but aims to move towards being entirely funded by ecosystem service users (Pagiola 2006; Porras 2013). FONAFIFO manages the PES funds with approval from the Ministry of Finance, and funds are paid to support sustainable forest management.

## 5.4 Biodiversity offsets

### Main characteristics

- **Name of mechanism:** Biodiversity offsets, habitat banking, wetland banking, mitigation banking, tradable development rights (TDR).
- **Source of revenue:** Offsets are payments for conservation or restoration activities to compensate for unavoidable environmental damages that occur during development.
- **Collector of funds:** Transactions can flow through entities such as habitat or wetland banks, or be managed by governments or non-profit organizations tasked with determining the amount of conservation or restoration needed on a per-project basis.
- **Why funds are paid:** Funds are paid by development companies in order to meet company specific goals regarding environmental impact, or as legislated and regulated by the government.
- **Who manages the funds and how:** Funds are managed by the transaction organisation (i.e. habitat bank), by the developer or by the nature manager.
- **What are the funds used for:** The funds are used to meet the goal of 'no net loss' for biodiversity or specific habitat. If a development project were to damage a given area of habitat, then the funds are used to restore the same amount (or more) of the same (or very similar) habitat on a comparable site.
- **Common obstacles to implementation:** Determining the exact amount of habitat or biodiversity unit to restore or conserve can prove difficult. Schemes are criticised since they permit development in environmentally significant areas, and restoration is often not as effective as conservation. These schemes can be politically or socially unpopular as they are perceived to limit development opportunity and increase costs.

Biodiversity offsets have been established in the United States and Australia, but have yet to be implemented in the Caribbean (Blackman *et al* 2014). There may be opportunity for Caribbean offset systems to be developed that capture funding, and require developers to carefully consider the environmental effects of their actions (Santos *et al* 2015). Figure 9 shows the steps of the mitigation hierarchy, with the X axis representing a state of 'no net loss' where there is neither positive nor negative impacts on biodiversity. Each bar represents an alternative scenario of a development project, moving from left to right the scenarios go from least preferred to most preferred. The mitigation hierarchy is a process of determining if impacts can be avoided, minimised, rehabilitated, and finally compensated. Only when adequate environmental management steps have been taken (including compensation) can the scenario reflect a positive net environmental impact (Lanius *et al* 2013).



**Figure 9.** Steps of the mitigation hierarchy, a process in which it is determined if impacts can be avoided, minimised, rehabilitated and finally compensated. Each bar presents another scenario of a development project, moving from least preferred (left) to most preferred (right). The biodiversity offsets are shown in purple. Figure from Lanius *et al* (2013).

## 5.5 Carbon offsets

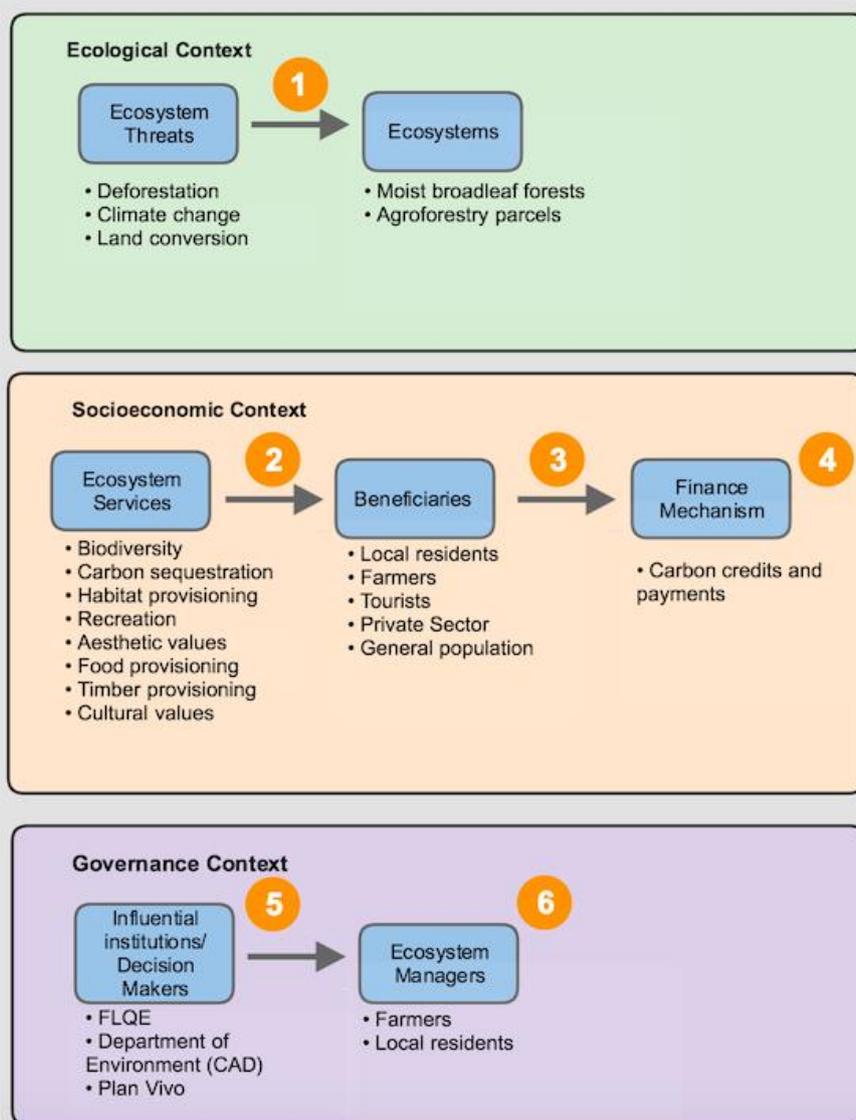
### Main characteristics

- **Name of mechanism:** Carbon offsets.
- **Source of revenue:** Tradable credits derived from the sequestration of greenhouse gas emissions are bought primarily by governments or companies.
- **Collector of funds:** The entities that sell the credits (thereby 'providing' greenhouse gas sequestration), which can be private companies, NGOs, environmental managers and restoration managers.
- **Why funds are paid:** Payments are made for the tradable credits that represent the greenhouse gas sequestration services provided by the relevant project. These projects could follow emission reduction obligations (compliance market) agreed in international agreements (Kyoto Protocol, Paris Agreement) or be part of the voluntary carbon market.
- **Who manages the funds and how:** The credits are traded in the voluntary or compliance carbon markets, management of the funds is undertaken by an approved competent authority.
- **What are the funds used for:** Funds are used for conservation of critical carbon sinks in terrestrial (e.g. peatlands, forests) or marine (e.g. seagrass, kelp forests) ecosystems. Funds can also be used in revegetating previously degraded ecosystems, thus improving their carbon sequestration potential.
- **Common obstacles to implementation:** Measuring carbon storage capacity for different ecosystems as a technical quantification is difficult and requires a certain level of expertise. Carbon sequestration projects often need to be of a sufficiently large scale to cover high transaction costs and generate sufficient credit volume, which reduces applicability. REDD+, a modality of carbon sequestrations projects, is seeing an oversupply of credits, but demand can be increased with stricter global emission reduction obligations.

Carbon offsets are used globally, yet the application in the Caribbean is extremely limited, with only one clear example found in the literature. This case study from the Dominican Republic is described below (Section 5.6).

## 5.6 Case Study: Carbon offsets in the Dominican Republic

The Two Worlds – One Bird (2W1B) program in the Dominican Republic is a unique conservation consortium that includes Reserva El Zorzal, the nation's first private nature reserve created in 2012, alongside reforestation and carbon offsetting programs (Kerchner & Rodriguez 2014). The area is key habitat for the endangered Bicknell's Thrush (called Zorzal in Spanish) and the region houses a few other protected areas, providing an ecological corridor for habitats in the region (CEPF 2015). Figure 10 presents the context of the 2W1B case study using the Eco<sup>2</sup>Fin framework.



**Figure 10.** Contextual scoping for the carbon offsets scheme in the Dominican Republic.

The funds flow analysis of the 2W1B program is shown in Figure 11, demonstrating how the program secured financing while supporting a mixed use natural landscape, that meets biodiversity and development goals. The current situation is presented, in which the program itself serves as an intervention and no real obstacle has been detected.

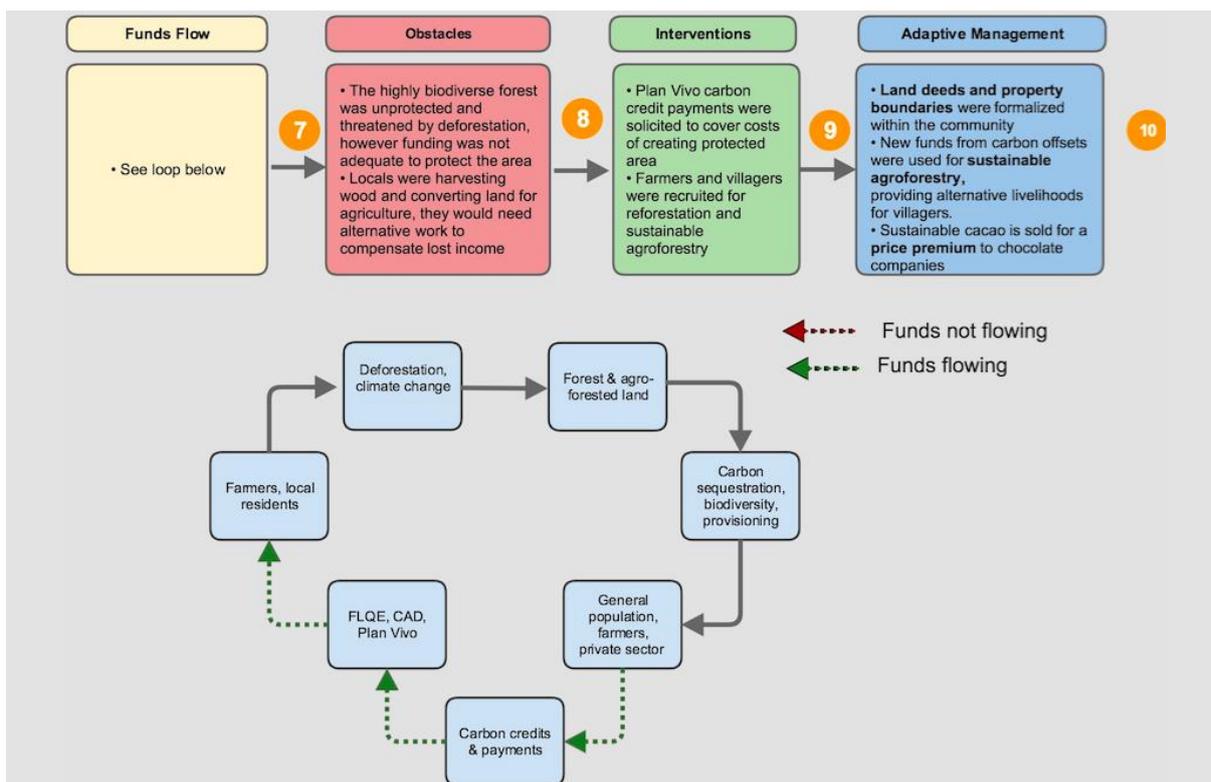


Figure 11. Funds flow analysis for the carbon offsets scheme in the Dominican Republic.

The 2W1B carbon offset system is funded by organizations who purchase the carbon credits, and can be located anywhere in the world. The funds flow to the project via Plan Vivo, and are managed by a local community organization Fundacion Loma Quita Espuela (FLQE) and the national environmental organization El Consorcio Ambiental Dominicano (CAD). Actions are then taken by a consortium of farmers and community volunteers, who are the ecosystem managers. They participate in sustainable agroforestry and support reforestation and biodiversity conservation. These actions reduce the environmental threats of deforestation, in turn supporting the ecosystem to provide increased services.

An additional benefit of the program is a price premium on the sustainable cacao. North American chocolate companies learned about the innovative agroforestry occurring in Dominican Republic, and they offered to pay a higher price for the sustainable cacao. This result was unexpected and exemplifies how, when value is communicated to stakeholders that have vested interest, financial support can be forthcoming (CEPF 2015).

Furthermore, property rights have been delineated in the area as a consequence of the program. In the land afforested for carbon offsets, Kerchner and Rodriguez (2014) found that 85% of the landowners did not have legal deeds for the land. However, the community members and landowners agreed to draw up informal property boundaries, which were recognised by the sheriff, and the government issued harvesting permits to people engaged in tree planting (i.e. they could harvest cacao if they also planted trees). The *ad hoc* system ended up fulfilling all stakeholders needs without needing extensive government involvement or costly disputes

## 6 Financial investments

### 6.1 For-profit investments linked to nature management

Main characteristics

- **Name of mechanism:** For-profit investments linked to nature management, which can be in the form of green bonds and impact investment.
- **Source of revenue:** Companies, venture funds, pension funds, governments or other types of investing agencies.
- **Collector of funds:** The entity managing a project where investments made. This could be a private company, government agency, NGO or a special purpose vehicle created specifically for administering funds for the project.
- **Why funds are paid:** Investments are made for corporate social responsibility (CSR), reputational reasons, mitigating or adapting to risk, or for a combination of profit making and non-financial impact. Investments are also made for philanthropic or altruistic purposes.
- **Who manages the funds and how:** Investment or fund managers are responsible for developing portfolios and choosing where and how much to invest.
- **What are the funds used for:** Funds can provide capital for sustainable or green businesses, such as microfinance loans helping farmers transition to sustainable farming practices. Investments can also finance conservation projects directly, if these can provide economic returns. Many investments seek triple bottom line returns, with benefits accruing financially, socially and environmentally.
- **Common obstacles in implementation:** In the Caribbean, lack of experience in this type of financing leads to lower trust by investors. Additionally, search and transaction costs are high due to small project sizes and limited availability of attractive deals that provide triple bottom line returns. Due to ill-defined land rights, investors do not have collateral to fall back on. Furthermore, providing information to investors on the environmental or social impact of investments is complicated, and organisations often struggle to define key performance indicators (KPIs).

On a global level, the ‘impact investment’ market is growing fast. Investors have become more comfortable with the ‘green’ products on offer, and the conservation investment market has even been growing faster than the broader impact market (Credit Suisse & McKinsey 2016; UN Global Compact 2015). As shown in Figure 12, there are different types of investing that range from traditional to philanthropic (UN Global Compact 2015). Biodiversity Conservation Venture Funds (BCVF) have recently emerged as for-profit investment funds that sponsor nature management activities, while also seeking returns (CFA 2014). Another example is the [Althelia Ecosphere Fund](#), which seeks investment in projects where they can form a public-private-partnership, sharing responsibility and returns, whereby fund performance is measured by social, environmental and economic benefits (Althelia 2017; NatureVest/EKO 2014). On a smaller scale, microfinance loans and investments can be used to help transition businesses and communities towards sustainable practices and can contribute to economic development if the enterprises are successful. In the Caribbean, conservation investments are limited, one example from St Lucia is discussed in Box 8.



**Figure 12.** The investment spectrum. Investment types range from traditional to philanthropic and can be focused solely on competitive returns or target to also result in social and/or environmental impact (UN Global Compact 2015).

**Box 8.** Invest St Lucia

In order to realise its ambitious goals of transitioning into a green economy, St Lucia has spearheaded an investment strategy that necessitates triple bottom line returns (financial, social and environmental). [Invest St Lucia](#) is the investment entity of the government, and has recently decided to proactively seek out ‘green’ investments that will also benefit the people of the island nation (Geoghegan *et al* 2014). The scheme focuses on three sectors: tourism, manufacturing and infrastructure. The island is an attractive location for companies due to its economic and political stability and favourable tax system (Invest St Lucia 2016; US Department of State 2017). The approach adopted by St Lucia, is a replicable demonstration as to how government can positively influence financial investments and drive the transition towards a green economy.

## 7 Discussion and conclusion

Sustainable finance is crucial for ecosystem management. Without adequate, sustained and dependable sources of funds, nature managers are not able to effectively implement conservation measures and meaningful results cannot be realised. The need for sustainable finance, coupled with the diversity of novel, sustainable revenue streams, is rapidly gaining attention in the policy domain. However, knowledge is lacking on how SFMs work in practice, the common obstacles in sustainable financing, and ways to overcome these obstacles. Therefore, the current state of affairs of sustainable financing is characterised by, on the one hand, widespread advocacy by conservation organizations and NGOs, and on the other hand, a shortfall in well-founded guidelines for implementation.

The Caribbean could be considered an ideal region to conduct a regional study of sustainable finance to build the knowledge base on how to successfully implement and manage SFMs. The islands have strong economic dependence on their ecosystems, making the implementation of sustainable ecosystem management a necessity. Furthermore, the region has extensive experience as a testing ground for SFMs and the regions nations have proven to be willing to be early adopters of many different SFMs.

This study systematically analysed SFMs to generate a comprehensive suite of current information for policy makers, nature managers, the private sector and researchers, interested in exploring the potential of SFM. The main conclusions discuss emerging trends, managing the shortfall between financial supply and demand, obstacles to implementation, knowledge gaps, and new opportunities.

### 7.1 Trends

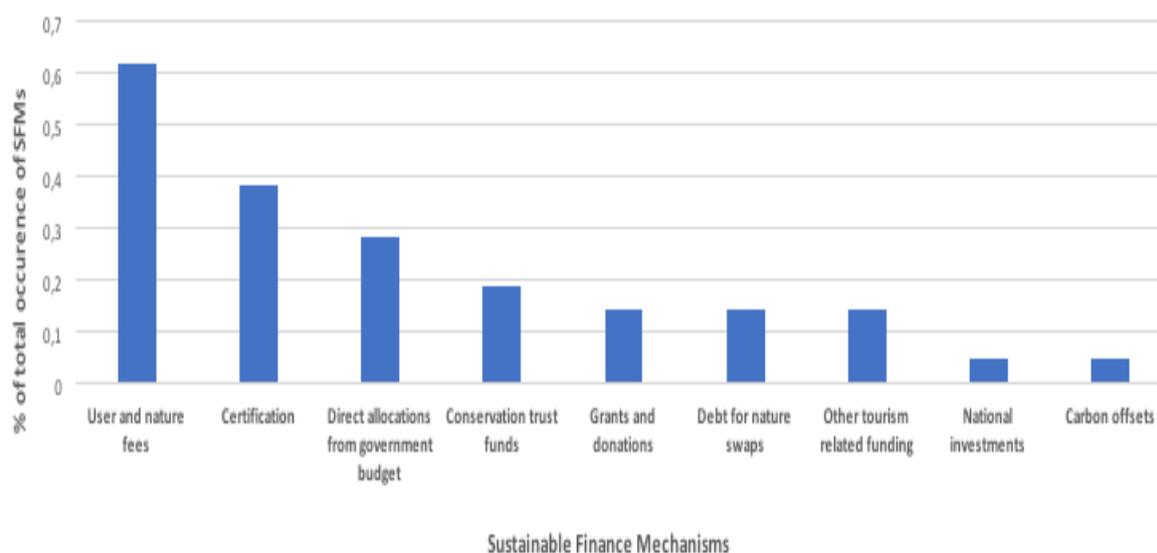
Table 3 combines all case studies drawn out in this literature assessment in terms of the type of mechanism, which sectors are involved, and the prevalence of mechanism / sector combinations. It is important to note, that due to time restraints this does not provide an all-encompassing overview of the Caribbean region.

There are many well-established mechanism / sector combinations. The most prominent is between direct allocations from government budget and agriculture, forestry, fisheries, and trade and transportation sectors. Other significant combinations can be seen between certification and user fee mechanisms and tourism and utilities sectors.

**Table 3.** Illustration of the case studies drawn out in the literature assessment. These are categorised in terms of the type of SFM, sectors involved, and the prevalence of mechanism / sector combinations. Green cells highlight the most common mechanism / sector combinations, with red representing the least common. It is important to note, that due to time restraints this does not provide an all-encompassing overview of the Caribbean region.

		Sustainable Finance Mechanism														
		Non-Market					Indirect Market	Direct Market					For-profit investments linked to nature management			
		Direct allocation from government budget	Fines and damage claims	Grants and donations	Conservation trust funds	Debt for nature swaps	Certification	User and nature fees	Other tourism related funding	Payments for ecosystem services	Biodiversity offsets	Carbon offsets	Local investment	National investment	Regional investment	Global investment
Private Sector	Agriculture, forestry & fisheries	Green					Yellow						Red		Red	
	Tourism	Yellow	Yellow	Yellow	Red	Yellow	Green	Green	Yellow						Red	
	Financial services			Yellow	Yellow	Yellow							Red		Red	
	Trade and transportation	Green	Yellow		Red										Red	
	Real Estate								Red							
	Utilities (water / waste / electricity)	Yellow					Green								Red	
	Energy and mining				Red										Red	
	Health care															
	ICT															
	Construction															
Public sector	Government	Green	Yellow		Green	Yellow				Red			Red		Red	
	Civil Society			Yellow	Green	Yellow				Red					Red	
	Communities										Red				Red	

Figure 13 presents the relative frequency of each mechanism found in this study. There are SFMs in the Caribbean region for which no information was found in the literature. Among these are the for-profit investments related to nature management. Even though this market has been growing in other parts of the world, it appears that the Caribbean islands have yet to implement these types of investments. To tap into this funding potential, islands could consider grouping to work jointly to overcome the present obstacles barring investments, such as project size and search costs, thereby attracting investments. For PES and offsets mechanisms, previous research undertaken by McIntosh and Leotaud (2007) serves as guidance as to how these SFMs could enable future finance opportunities (see Section 5.3).



**Figure 13.** Illustration of the relative frequency of SFM occurrence, shown as a percentage of the SFMs presented in the case studies drawn from the literature search conducted for this study. Case studies for local, regional and global investments, biodiversity offsets, and payment for ecosystem services were not found in the Caribbean island literature. It is important to note this indication is based upon a rapid evidence review and may not be wholly accurate.

The frequency of sector involvement identified in this research is presented in Figure 14. The sectors most commonly engaged with SFMs are tourism, government and utilities. Healthcare, information, communication and technology, real estate, energy and mining are sectors that appear to have limited involvement. Their low participation rate is counterintuitive, since these sectors largely depend upon healthy ecosystems and stable natural capital assets. For example, the healthcare sector benefits from nature conservation in terms of clean air and water that reduces the prevalence of human health issues. Additionally, the real estate sector benefits from natural aesthetics, which is reflected in higher property values and rental prices in areas with high aesthetic value.

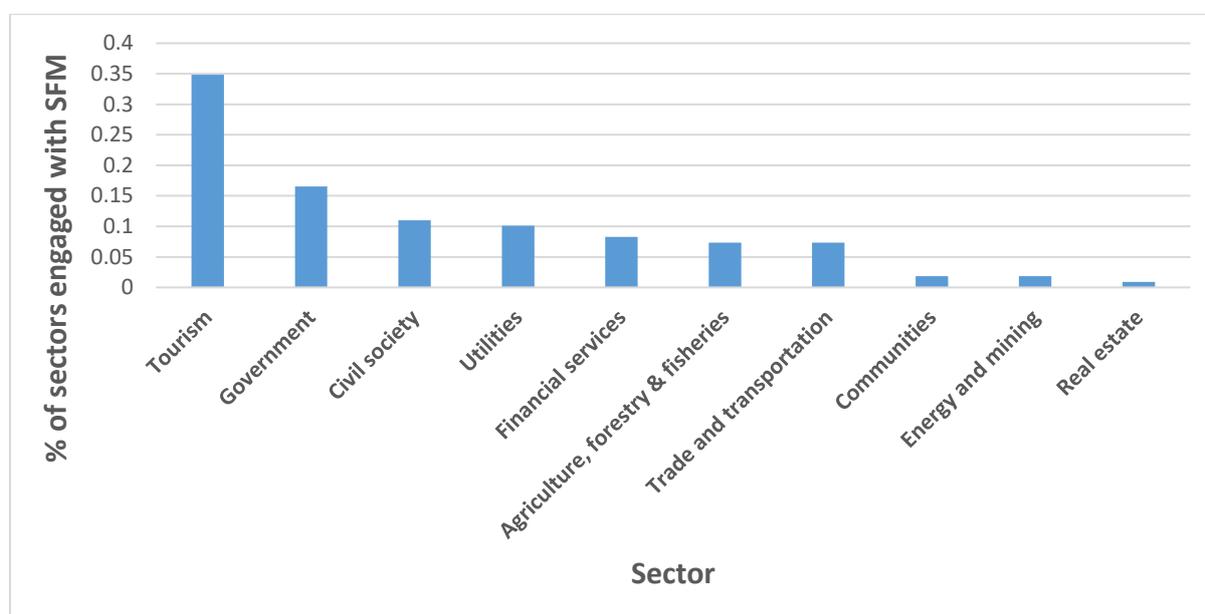
These benefits are not always self-evident for the private sector, since awareness of business dependencies on natural capital is still evolving. This limited understanding of dependencies on natural capital, results in private sector companies being unable to justify investments in nature management to their stakeholders, since the costs (positive or negative) associated to these dependencies may not have been internalised in the company balance sheet. Therefore, most of the private sector investment in nature management remains disconnected from the companies' core operations and is mostly done under the umbrella of corporate social responsibility (CSR) or other forms of global citizenship.

The fact that these benefiting sectors do not financially contribute to the protection of the ecosystem services that create value for their business ventures, implies that (in theory)

there remain untapped revenue sources for nature conservation. However, in order to access this untapped resource, it is necessary to clearly demonstrate how natural capital directly affects their bottom line, and highlight the business risks associated with improper consideration of these dependencies.

In order for this challenge to be overcome and to make more businesses recognise their dependencies on natural capital, practitioners looking to implement SFMs with private sector stakeholders need to identify those businesses who are innovative 'early adopters'. These businesses are those that have begun identifying social and environmental factors that have a bearing on their operations, often through corporate accounting (i.e. natural capital accounting) and reporting (sustainability reports), and who use this information to strengthen their business models against environmental risks and liability.

The involvement of local communities in the design and operation of SFMs provides another opportunity. They are the beneficiaries of many ecosystem services and the stewards of local ecosystems, and the Dominican Republic case study (Section 5.6) shows that with limited involvement of the government, community managed mechanisms can be established.



**Figure 14.** Relative frequency of sectors involved in sustainable finance. Presented in terms of the percentage of industries involved in the case studies drawn out of the literature review. The sectors health care, ICT, and construction are not recorded in the Caribbean island literature.

## 7.2 Obstacles and interventions

This section presents an overview of the main obstacles one may be faced with when establishing a SFM. Table 4 lists potential obstacles against the different types of SFMs, and provides information regarding the interventions that can be put in place to overcome the obstacles. This study categorises obstacles into those that are administrative, environmental, political, financial or social in their nature.

**Table 4.** Overview of obstacles to implementation and targeted interventions per SFM.

Category	SFM	Main obstacles	Interventions
Non-market	Direct allocations of government budget	<p><i>Political:</i> public resistance against tax increases.</p> <p><i>Financial:</i> insufficient resources to close funding gap.</p> <p><i>Legal:</i> lack of legislative processes for earmarking funds for ecosystem management.</p> <p><i>Administrative:</i> insufficient financial management capacity of organisations implementing environmental management.</p>	<p>Engage governments and highlight economic benefits of conserving natural systems to stimulate action and reduce resistance against environmental taxes.</p> <p>Explore other sources of funding to close funding gap.</p> <p>Increase financial management capacity at the organizational level. This may include: financial planning; clearer communication of budget requirements to central government; reporting on results of investment in ecosystem management.</p>
	Fines and damage claims	<p><i>Political:</i> politically unpopular or unfeasible depending on enforcement capacity.</p> <p><i>Social:</i> enforcement is resource intensive, without proper enforcement illegal activity continues.</p> <p><i>Legal:</i> legislation required to deter and penalise illegal behaviour. Prosecution disputes may result in costly legal battles.</p>	<p>Increasing awareness in user groups (society and business) about the existence and reason for fines can increase compliance. This can be supplemented by environmental and economic information demonstrating benefits of behavioural change.</p> <p>Employ efficient methods for enforcement, such as remote sensing or recruiting ecosystem users to participate in monitoring and enforcement.</p> <p>Legal capacity and legislation can be strengthened to inform compliance and deter disputes.</p>
	Grants and donations	<p><i>Administrative:</i> global funding organizations follow strict guidelines when deciding what can be funded.</p> <p><i>Financial:</i> finance streams are often one-off, project based and not dependable.</p>	<p>Use initial funding to set up activities that generate additional revenue streams. Use capital to develop SFM, such as trust funds, eco-tourism and payment for ecosystem services.</p> <p>Utilise innovative donation schemes, such as tax-deductible donations, crowdfunding campaigns or strategic partnerships (i.e. with private sector).</p>
	Debt for nature swaps	<p><i>Administrative:</i> high transaction costs lead to inefficiency.</p> <p><i>Financial:</i> insufficient resource to close funding gap.</p>	<p>Establish innovative administrative partnerships (e.g. government, NGO, private sector) and draw upon past experiences.</p> <p>Use initial funding to establish additional revenue generation through SFMs.</p>

Category	SFM	Main obstacles	Interventions
	Conservation trust funds	<p><i>Administrative:</i> complex financial structure can sometimes require specialist expertise for effective management.</p> <p><i>Financial:</i> funds require principal capital to be maintained in order for interest payments to continue. If the capital is indexed linked, returns are also subject to market volatility. Without careful management of the capital then the fund may end up being drained.</p>	<p>Aggregate funds for larger interest payments, by having regional or grouped CTFs with capital from numerous islands and sources.</p> <p>Solicit advice from experienced financial managers when designing CTFs and focus on securing long term financial stability.</p> <p>Appeal to stakeholders beyond public sector (i.e. private companies and NGOs) to provide finance or expertise by demonstrating the added value for their involvement (i.e. good public relations, improved chances of gaining license to operate).</p>
Indirect market	Certification	<p><i>Environmental:</i> uncertainty regarding tangible impacts on biodiversity conservation.</p> <p><i>Financial:</i> limited access of local businesses to resources such as capital and technology needed to get certified.</p> <p><i>Social:</i> lack of demand for premium certified products and lack of awareness at the business level about dependence and impact on the natural environment. Returns are also highly dependent on an informed and principled consumer who is willing to pay a premium, therefore consumer awareness is a critical component of ensuring success.</p>	<p>Provide national or regional support for implementation of certification schemes, including sharing resources and knowledge.</p> <p>Scale up certification schemes that are well-established and well-known for their positive impact on informing sustainable management and nature conservation.</p>
Direct market	User and nature fees	<p><i>Administrative:</i> new legislation may be necessary to earmark funds or assign managing party.</p> <p><i>Environmental:</i> an increase in tourism can negatively impact natural areas.</p> <p><i>Political:</i> lack of transparency on use of funds.</p> <p><i>Financial:</i> cost of running</p>	<p>Mirror existing examples of fee systems in the region, adopt lessons learned, and implement best practice.</p> <p>Channel funds directly to what the fee is paid for and report results that have been achieved through investing funds.</p> <p>Use research on willingness-to-pay for conservation to raise awareness, create common ground among stakeholders (local communities, businesses, government) to set acceptable levels of fee.</p>

Category	SFM	Main obstacles	Interventions
		<p>the system can be high. Other revenue streams might have to be developed concurrently to close any funding gaps.</p> <p><i>Social:</i> fear of driving tourism away when implementing fees, also challenges traditional free access to natural areas for residents.</p>	<p>Avoid environmental degradation by limiting visitor numbers or restrict areas open to tourism (i.e. multi-use zonation).</p>
	Payments for ecosystem services	<p><i>Administrative:</i> high transaction costs in setting up, monitoring and enforcing schemes.</p> <p><i>Financial:</i> most PES schemes rely upon supplemental funds from grants or governments in order to run successfully.</p> <p><i>Social:</i> traditionally, resources are free to access, getting users to pay may prove controversial. Land ownership is not always clearly defined to ascertain service providers.</p> <p><i>Legal:</i> legislation may be required to mandate PES.</p>	<p>Learn from successful examples of PES schemes (see Section 5.3).</p> <p>Users must have an increased awareness of value of resources, and understand why they should pay for ecosystem services. This can be done with economic valuation studies paired with communication and education campaigns.</p> <p>Land tenure and land use rights need to be clearly defined. In many rural areas, there are no clear boundaries between properties or competing land tenure claims.</p> <p>Local communal PES-like systems could be set-up, whereby payments are not necessarily financial, but in-kind contributions.</p>
	Biodiversity offsets	<p><i>Administrative:</i> Setting up biodiversity offset systems is complex, leading to high transaction costs. Schemes also need to be underpinned by sound ecological knowledge that might not exist for the area in question.</p> <p><i>Environmental:</i> There is a risk that biodiversity offsets do not restore biodiversity to comparable levels, in those areas where the development takes place.</p> <p><i>Political:</i> mandating offsetting is politically unfavourable as it increases costs to developers, may deter economic prospects,</p>	<p>Build upon existing successful examples of offsetting schemes.</p> <p>Governments work with private sector to develop beneficial mitigation schemes that deliver multiple benefits, as well as biodiversity conservation. This can be embedded in operational frameworks.</p> <p>Develop biodiversity indicators that accurately represent environmental costs and benefits to streamline the offset process.</p>

Category	SFM	Main obstacles	Interventions
		and may face opposition by the public due to the environmental risk mentioned above.	
	Carbon offsets	<p><i>Administrative:</i> carbon metrics needs to be quantified, requiring technical expertise (often at high cost).</p> <p><i>Environmental:</i> offsetting alone does not lead to a net reduction of carbon emissions. Offset projects may not target land considered important for biodiversity and ecosystem services, but focus instead on sites that are politically feasible or easier to remediate.</p>	<p>Learn from examples of carbon credit systems that have been successful enacted to increase efficiency and build capacity.</p> <p>Capitalise on Paris Agreement and other global mitigation commitments, which can increase demand for carbon credits.</p> <p>Work to develop and provide carbon monitoring tools that are less costly to apply and require less technical expertise.</p> <p>Include environmental managers and communities from the outset of credit scheme development to ensure the scheme provides mutual benefit to all key stakeholders.</p>
Finance	For-profit investments linked to nature management	<p><i>Administrative:</i> high search costs involved in finding investments that fulfil triple bottom line returns.</p> <p><i>Financial:</i> providing financial return alongside environmental benefits remains challenging for conservation projects.</p> <p><i>Social:</i> finding dependable project partners with trusted track records.</p>	<p>Regional coordination can increase the scale and impact of projects to attract larger investments.</p> <p>Establishing consistent monitoring and KPIs that can be used to communicate triple bottom line returns.</p> <p>Support sustainable microfinance initiatives, such as community based investments, that proven successful in the Caribbean region.</p>

### 7.3 Regional opportunities

Many different SFMs exist, all face unique obstacles and are dependent upon the context in which they are implemented. There is no standardised approach for optimal implementation of SFMs, each mechanism should be adjusted to fit specific local requirements. Designing suitable SFMs for specific locations and challenges is an expertise that should be shared and pooled, in order to build capacity throughout the Caribbean region. For example, a designated regional or local SFM Manager, whose role is to focus specifically on SFM development, could be instated.

Another opportunity is to consider initiating SFMs from bottom-up, in combination with top-down approaches. Examples of effective community involvement in the design phase of SFMs (see Sections 3.4 and 5.6) can galvanise support for other initiatives and improve chances of stakeholder buy-in. The community involvement process can go hand in hand with capacity building at the local level, raise awareness of the value and benefits

ecosystems bring to communities, and creating incentives to protect the local environment and develop sustainable livelihoods.

At a regional level, there are benefits to islands working collaboratively to develop SFMs as a collective regional unit. For example, islands may consider a regional framework for setting tourist fees, thus ensuring the schemes do not hamper competitive advantage of one island over another. Collaborative working can also increase the size and scope of interventions supported by SFMs, which can attract larger global funding streams. Increased project size and regional collaboration can also improve economies of scale and reduce collective operational costs. Networks can (and should) be used to share information and learn from each other's successes and failures in establishing SFMs and implementing adaptive management of the regions natural capital.

Working on standardised approaches to monitor, measure and communicate SFM impacts, provides another opportunity to address the challenges of attracting investment in nature management. The impact from resources allocated to ecosystem management is often less evident to investors, compared to investments in social development or infrastructure projects. Improvements in the quality of natural capital stocks and biodiversity need to be accounted for, alongside the wider benefits realisation that results from environmental improvements, and communicated in a suitable manner to appeal to relevant stakeholders. This type of disclosure process increases transparency and can help attract new investments.

Monitoring and knowledge sharing also increases accountability and prevents mismanagement of funds. There are also protocols in existence that can be implemented to determine performance of SFMs. Corporate environmental and social governance and reporting systems (such as the Althelia example discussed in Section 6.1) could be explored further, with a view to using these systems in defining standardised approaches to monitor, measure and communicate environmental, social, and economic impacts resulting from the application of different SFMs.

## 7.4 Suggestions for future work in Sustainable Finance

Future research could consider focusing on investigating gaps in finance, such as the limited involvement of certain sectors (i.e. health and real estate sectors) in SFMs in the Caribbean. Many industries interact and depend upon the natural environment, yet fail to recognise this. More can be done to encourage these parties to identify dependencies on natural systems, and the associated risks this presents, strengthening the case as to why businesses have a vested interest in financing nature management.

In the case of for-profit investments linked to nature management, quantifiable indicators that demonstrate the environmental, social and financial returns on investment need further development. Most investment organisations in the finance sector adopt environmental reporting processes, yet it is widely recognised there is a need to improve the visibility of biodiversity and ecosystems in corporate reporting tools and demonstrate the benefits conservation of biodiversity brings to businesses. Currently there is a low perception of risk by businesses in relation to ecosystem degradation, if they are not deemed material to operations.

Nature management practitioners could benefit from capacity building to enable them to recognise the opportunities that novel approaches to funding nature management present. It will be important for environmental experts to understand the language and requirements of new financiers and to formulate nature management projects in this context. The lack of bankable projects is a factor limiting engagement from the private sector; future co-design of

projects between nature managers and investment managers could prove a valuable endeavour to enable both parties to jointly overcome barriers.

Table 5 lists some potential sources of funding that could assist in the further exploration and development of SFMs in the Caribbean. Whilst not exhaustive, it provides insight into the main actors operating in the conservation finance space and the characteristics of funding sources. The defining characteristic is whether the funder's aim is generating positive social and/or environmental impact, or achieving financial returns. Funding sources also vary in terms of the type of capital they provide:

*Responsible investment:* Loans, equity or guarantees in commercial terms for investments with a social or environmental component

*Impact investment:* Loans, equity or guarantees for investments that deliver high environmental or social impact. These have lower interest rates, higher risk on returns, or longer repayment terms

*Philanthropy:* Mainly grants and donations or funding for research and capacity building. In large conservation finance initiatives, it is common to see a combination of different categories of funders, which makes these initiatives more feasible by stacking different types of capital each with its own risk appetite and return expectations (see also Figure 12).

The examples provided are grouped in the following six categories:

- *Private foundation funds and International NGOs:* Donate to conservation activities that meet organisational strategic objectives, providing funding for capacity building and research. Increasingly, foundations fund initiatives linking environmental protection with human well-being.
- *Bilateral development organizations:* Cooperation agencies or development banks that provide financing to developing countries in the form of loans, equity participations, guarantees, grants or capacity building. Their risk profile is different from commercial banks, enabling them to finance higher risk transactions.
- *Multilateral development and financial organisations:* Multilateral development banks or financial institutions funded by multiple developed countries. They provide financing to developing countries in the form of loans, equity participations, guarantees and sometimes grants for capacity building and research. Geographic scope or thematic focus may vary between organisation. The Green Climate Fund, for example, only finances projects demonstrating climate adaptation or mitigation contribution. Conservation and restoration of ecosystems are often key investment priorities.
- *Conservation funds:* These include conservation trust funds, that provide grants, and conservation equity funds that typically invest in return-generating projects.
- *Private sector and commercial financial institutions:* The main goal of these institutions is to achieve commercial returns, but are often drawn towards investments delivering positive social impacts, such as ecosystem conservation. Financing is often aimed at securing or improving supply chains, or achieving corporate social responsibility objectives.

**Table 5.** Some potential funding sources to develop SFMs in the Caribbean, categorised by organisation type and indicating the type of capital available and returns appetite.

Category	Examples	Targeted Social and/or Environmental Impact		
		Competitive Returns		
		Responsible investment	Impact investment	Philanthropy
Private Foundation Funds	The Gordon and Betty Moore Foundation			✓
	The David & Lucile Packard Foundation			✓
Large International NGOs	Conservation International			✓
	World Wildlife Fund			✓
	The Nature Conservancy			✓
Bilateral development organizations	Netherlands Development Finance Company (FMO)	✓		
	KfW Development Bank		✓	✓
	United States Agency for International Development (USAID)		✓	✓
Multilateral development and financial organisations	European Commission			✓
	European Investment Bank	✓		
	World Bank	✓		
	The Green Climate Fund	✓	✓	✓
Conservation Funds	Caribbean Biodiversity Fund		✓	
	Critical Ecosystem Partnership Fund		✓	
	Athelia		✓	
Private sector and commercial financial institutions	Credit Suisse	✓		
	JP Morgan Chase & Co.	✓		
	BNP Paribas	✓		
	Électricité de France (EDF)	✓		

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## Appendix A: Examples of Sustainable Finance Mechanisms in the Caribbean

### A.1 Examples of direct allocations from government budget

Case Study	Mechanism Description	Use of funds	Source(s)
Jamaica	The Conch Levy Act regulates the conch export market by charging a levy. The revenues are allocated to a fund that is managed by a board. This board consists of the Permanent Secretary of the Ministry responsible for agriculture (or a nominee), the Director of Fisheries, Director of Veterinary Services, Financial Secretary, Chairman of the Fisheries Advisory Board, and four other persons appointed by the Minister responsible for agriculture. The cabinet approves the composition of the board.	To facilitate the sustainable management and development of the fisheries sector.	Conch [Export Levy] Act (2009)  Holmes <i>et al</i> (2014)
St Vincent	The Integrated Forest Management and Development Program (IFMDP) was created through a cabinet intervention in 2003, motivated by the dual objectives of restoring watersheds and providing alternative livelihoods. The state-owned, but semi-autonomous, water and electricity companies became the buyers of the watershed services by paying a percentage of their profits to the forestry department.	Encouraging the development of local forest user groups and providing incentives to former marijuana growers for reforestation and watershed protection.	McIntosh & Leotaud (2007)
Trinidad and Tobago	A community group, Grand Riviere Tourism Development Organisation (GRTDO), joined the government initiative, The National Reforestation and Watershed Rehabilitation Program (NRWRP). The initiative is completely funded by the government. Other partners are the forestry department and Trinidad and Tobago Red Cross Society.	Reforestation (125 acres to date), maintenance and development of trails used for eco-tourism and empowering marginalised community members, such as women.	CANARI (2012)
Cuba	The government contractually assigns state-owned land to a farm manager. The farm manager manages a timber plantation and the government provides salary, house, equipment and seedlings. The farm manager receives a percentage of the revenue generated by timber sells along with the right to sell other goods.	Rehabilitate degraded areas, conserve natural vegetation, promote production forestry and enhance aesthetic value of the island.	CANARI (2012)

## A.2 Examples of fines and damage assessments

Case Study	Functioning of mechanism	Use of funds	Source
US Virgin Islands	Ships are fined for anchoring in prohibited areas or causing damage, modelled after American fine systems	Information not available	Spergel & Moye (2004)
Trinidad and Tobago	Oil companies must pay damage compensations for oil spills. In 2014, a state-owned oil company had to pay a damage claim of US\$3.1 million for a large spill.	It is unclear how much of this money has been used for restoration activities. Spills continue to occur, suggesting ineffectiveness of this deterrent.	Visser (2014) Daily Express (2017)
British Virgin Islands	Fines for mooring without a Marine Conservation Permit at ~200 marine park buoys can be up to US\$500. Fines are enforced and managed by MPA staff.	Information not available	TNC (2001) Spergel & Moye (2004)

## A.3 Examples of grants and donations

Case Study	Functioning of mechanism	Use of funds	Source(s)
Trinidad and Tobago	<a href="#">Fondes Amandes Community Reforestation Project</a> (FACRP) receives money from embassies, private companies, winning the Tidy T&T competition and financial partnerships with the government.	FACRP sponsors community forestry projects and relies on a formal constitution and board of directors to manage funds. Projects include organic agriculture and landscape maintenance.	FACRP (2017) McIntosh & Renard (2009)
Nevis	US registered charitable foundation 'NevKit' was created to be a tax-deductible entity to attract donations for <a href="#">Nevis Historical and Conservation Society</a> . Since its creation, it has developed into a professional fund organisation managed by a Board of Trustees.	NevKit provides management and funds to NHCS and other organizations who then participate in conservation activities.	McIntosh (2011)

## A.4 Examples of debt for nature swaps

Case study	Functioning of mechanism	Use of funds	Source(s)
Jamaica	Multiple DNS have taken place between Jamaica, TNC and the United States. Both	The first DNS was used to create the Environmental	TNC (2001)

Case study	Functioning of mechanism	Use of funds	Source(s)
	<p>TNC and the US are funding parties, and the Jamaican government the recipient. One DNS included funding from the Smithsonian Institution and the other DNS was co-funded by the Puerto Rican Conservation Trust (PRCT).</p>	<p>Foundation of Jamaica in 1992. Since then, the EFJ has awarded over 1,200 grants to projects focusing on child development, such as programmes designed for youths who are at risk, and environmental sustainability, such as wetland and watershed management, and biodiversity protection. The second, smaller, DNS provided funding to the EFJ, with funds earmarked for research into bird migration in the Blue and John Crow Mountains National Park. The third DNS took place in 2004, and is set to generate US\$16 million over 20 years for tropical forest conservation across Jamaica's protected area network via the Forest Conservation Fund (FCF).</p>	<p>Bayon <i>et al</i> (2000)</p> <p>Hurley (2015)</p> <p>USAID (2014a)</p> <p>Environmental Foundation of Jamaica (unknown)</p>
Dominican Republic	<p>A DNS took place between the government of the Dominican Republic, TNC and PRCT. PRCT and TNC provided the external financial support. The <a href="#">PRONATURA</a> fund and the Dominican Central Bank agreed to convert debt into 'conservation bonds'. PRONATURA uses interest paid on the bonds to fund environmental projects.</p>	<p>PRONATURA projects that have received finance include: land acquisition, reforestation and park management. Currently PRONATURA focus on conservation aspects as ecosystem restoration and climate change adaptation.</p>	<p>TNC (2001)</p> <p>Bayon <i>et al</i> (2000)</p> <p>Hurley (2015)</p> <p>PRONATURA (unknown)</p> <p>UPI (1990)</p>
Antigua and Barbuda	<p>A DNS took place between the government of Antigua and Barbuda, TNC and Brazil.</p>	<p>Information not available</p>	<p>Weary (2017)</p> <p>Hurley (2015)</p>

## A.5 Examples of conservation trust funds

**Table 10.** Examples of conservation trust funds in the Caribbean.

Case study	Functioning of mechanism	Use of funds	Source(s)
<a href="#">Caribbean Biodiversity Fund</a> (CBF)	Caribbean wide CTF established by TNC, GEF, the World Bank and KfW (the German development bank) to fund conservation. The fund received a larger principal investment (and therefore had greater interest potential) working regionally rather than if islands were to operate CTFs individually.	CBF disburses funds to eight Caribbean countries to support terrestrial and marine protected area management and supplements (not replaces) government financing.	Bladon <i>et al</i> (2014)
DCNA Trust Fund	Dutch Caribbean Netherlands Antilles (DCNA) Trust Fund got its initial seed fund from the National Dutch Postcode Lottery, the donation was then matched by the Ministry of Interior. The fund's endowment is managed professionally by an external asset management company.	Funding is determined by the DCNA Trust Fund Committee, and money is used to cover Secretariat operational costs as well as certain day-to-day costs in protected area management for each Dutch OT.	McIntosh (2011) Cooper (2011)
Jamaica	The <a href="#">Jamaica Conservation and Development Trust</a> (JCDT) is an endowment fund that was initially financed by debt for nature swap capital via Environmental Foundation of Jamaica and is currently supported by private donations and national park entrance fees.	The JCDT is directly involved in (co-)management of national parks alongside the Forestry Department and National Environment and Planning Agency. However, the CTF (in 2011) was not yet actively providing finance due to insufficient capital.	McIntosh (2011)
Dominican Republic	<a href="#">Consortio Ambiental Dominicano</a> (CAD) is an environmental network operating an endowment fund started by donations from nine founding members, alongside surplus funds from projects and interest on purchased bonds. For several years after start up, no expenditures were made from the fund, to allow the principal to grow. Decision are made by board members, General Assembly of members and stakeholders have final say.	The fund is used to cover CAD Secretariat operational expenses, maintain a revolving social fund of micro-credit loans and funds other conservation activities.	McIntosh (2011)

Case study	Functioning of mechanism	Use of funds	Source(s)
Cayman Islands	<a href="#">National Trust for the Cayman Islands</a> (NTCI) operates multiple funds that are managed by the Trust Council and receive funds from mostly private donations.	The three funds operated by NTCI have different goals. One is currently unused in order to appreciate. The other one is used to purchase environmentally sensitive lands. The third one funds renovation or purchase of natural or historic sites on a revolving basis.	McIntosh (2011)
Nevis	<a href="#">Nevis Historical and Conservation Society</a> (NHCS) started an endowment fund that is managed by an independent non-profit entity, NevKit Foundation, which gathers tax-deductible donations. The funds can be utilised by following specified procedures, including Board approval and 30 days' notice.	NevKit provides management and funds to NHCS and other organizations who then participate in conservation activities.	McIntosh (2011)

## A.6 Examples of certification

**Table 11.** Examples of certification schemes in the Caribbean.

Case study	Functioning of mechanism	Use of funds	Source(s)
Jamaica	Green Grotto caves and Sandal's Royal received <a href="#">Earth Check's</a> platinum certification. They earned this through 10 years of energy conservation and proper water and waste management, next to active promotion of environmental sustainability.	Information not available	Urban Development Corporation (unknown)  Earth Check (2016)
St Kitts	A golf course received <a href="#">Audubon</a> certification. This scheme encompasses standards on wildlife, habitats and water quality management, reduced use of chemicals and water, as well as outreach and awareness raising on nature and conservation.	Information not available	St Kitts Tourism (unknown)  Audubon (unknown)
Cuba	<a href="#">Playa Ambiental</a> is a beach certification scheme, focused on environmental management, specifically applied to the Cuban political context. Certification must be requested by a group, committee or organization in charge of management of a	Information not available	Botero <i>et al</i> (2014)

Case study	Functioning of mechanism	Use of funds	Source(s)
	beach. The certification can be granted or removed by the owner of the brand, the Provincial Delegation of the Ministry of Science, Technology and Environment, who checks compliance every year.		
St Lucia	Farmers of fair trade bananas ( <a href="#">BananaLink</a> ) receive higher prices compared to conventional growers alongside a social premium for local development. In return, these farmers must comply with social and environmental criteria, such as reducing herbicide use.	To cover the increase in labour costs and different community services such as schools, health facilities, roads, pipe borne water, equipment for disadvantaged groups and disaster relief.	Moberg (2005)  BananaLink (unknown)
Dominican Republic	Farmers receive a premium price for the cacao they produce, paid for by <a href="#">chocolate companies</a> . Decisions related to the funds and management of these funds is mainly in the hands of <a href="#">Zorzal Cacao</a> in collaboration with a local CSO (FLQE) and an environmental network (CAD).	Sustainable agroforestry is the main action funded by the price premium, alongside conservation and reforestation.	CEPF (2015)

## A.7 Examples of user and nature fees

**Table 12.** Examples of user and nature fees in the Caribbean.

Case study	Functioning of mechanism	Use of funds	Source(s)
Bahamas	Divers at the Exuma Land and Sea Park pay US\$10 per person, funds are managed by the <a href="#">Bahamas National Trust</a> .	Funds collected by the trust, in addition to other revenue streams, are used for maintenance of the park; education, public meetings and conferences; administration and management; and depreciation of assets.	Terk & Knowlton (2010)  Bahamas National Trust (2016)
Dominican Republic	In Dominican Republic the dive fee is applied to the Del Este National Park, Litoral Sur de Santo Domingo Park, and Parque Submarino La Caleta National Park. The funds are managed by the government and the fee charged equals US\$2 per diver.	Information not available	Terk & Knowlton (2010)
Saba	A dive fee of US\$3 per dive. The funds are managed by the NGO Saba Conservation Foundation ( <a href="#">SCF</a> ).	The funds are used to maintain all facilities and equipment that	Terk & Knowlton (2010)

Case study	Functioning of mechanism	Use of funds	Source(s)
		support Saba's national parks.	Saba Conservation Foundation (unknown)
St Eustatius	Divers pay US\$6 for a single dive pass and US\$30 for an annual dive pass. The funds are managed by the NGO <a href="#">St Eustatius National Parks</a> (STENAPA). Dive shops collect the fees and pay STENAPA in accordance.	Fees are used for operational and maintenance costs of the marine park. Activities include maintenance of the moorings, awareness raising and enforcement at the park.	Terk & Knowlton (2010)  Statia Park (unknown)
Saint Barthelemy	A dive fee of US\$2.50 per dive is charged upon divers in the Saint Barthelemy Nature Reserve. The scheme is managed by the government.	Information not available	Terk & Knowlton (2010)
Guadeloupe	At the Reserve Naturelle De Petite Terre, divers pay US\$2.50 per dive. The scheme is governed by the government.	Information not available	Terk & Knowlton (2010)
Saint Martin	At the Reserve Naturelle Saint Martin, divers pay US\$1.50 per dive. The scheme is governed by the government.	Information not available	Terk & Knowlton (2010)
St Lucia	At the Soufriere Marine Management Area ( <a href="#">SMMA</a> ) and the Canaries and Anse La Raye Marine Management Area, dive fees of US\$5 per day or US\$15 dollar per year are implemented. The funds are managed by a non-profit organization and collected by the dive shops.	Research, monitoring, awareness raising, provision of facilities such as moorings, surveillance and enforcement, etc.	Terk & Knowlton (2010)  SMMA (unknown)
St Lucia	Visitors pay an entrance fee of US\$7 for Pigeon Island National Landmark at St Lucia. For residents there is a different entrance fee, namely ~US\$2.60. The funds are collected by the <a href="#">Saint Lucia National Trust</a> .	The Saint Lucia National Trust focusses on the maintenance of the islands' national parks and advocates sustainable use and management of natural resources.	Geoghegan (1998)  Saint Lucia National Trust (2017)
St Vincent and the Grenadines	The government governs a scheme that charges a dive fee of US\$3.80 per day at the Tobago Cays Marine Park.	Information not available	Terk & Knowlton (2010)
Jamaica	At the Blue and John Crow Mountains National Park a user fee is implemented. This fee is set at US\$10 for adults and US\$5 for children, and special fees apply to residents, namely JA\$100 (~US\$0.78) for adults and JA\$50 (~US\$0.39) for children. The fees are collected and retained by the Jamaica Conservation and Development Trust ( <a href="#">JCDT</a> ), a charity that manages the national park.	Together with other revenue streams the JCDT takes care of the management of the park.	TNC (2001)  Blue and John Crow Mountains National Park (unknown)
Antigua and Barbuda	An entrance fee of US\$8 per day for non-citizen visitors and US\$3 for residents is in place for Nelson's Dockyard National Park.	Funds raised are used to maintain and improve facilities (e.g. toilets, signs,	Geoghegan (1998)  TNC (2001)

Case study	Functioning of mechanism	Use of funds	Source(s)
	The managing party, <a href="#">National Parks Antigua</a> , is a non-profit organization.	picnic tables, information provision, etc.) and for the restoration program.	National Parks Antigua (unknown)
British Virgin Islands	Boat owners, charter boats, dive operators and foreign boats all pay mooring fees via the mooring buoy permit system. The system is managed by the BVI National Parks Trust, with dive operators also selling permits.	The funds raised by the mooring buoy permit system are used for the maintenance of the system and installation of new buoys.	TNC (2001) BVI Tourism (unknown)
Dominica, Grenada, St Kitts, Antigua, St Vincent, St Lucia	These islands cooperate by all implementing a cruise ship waste disposal fee of US\$1.50 per passenger.	Information not available	TNC (2004)

## Appendix B: Glossary

<b>Biodiversity</b>	The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.
<b>Biodiversity offsets</b>	A measurable nature conservation outcome from actions designed to compensate for adverse biodiversity impacts arising from project development, after appropriate prevention and mitigation measures have been undertaken.
<b>Carbon offsets</b>	A method of compensating for emissions of carbon dioxide, or other greenhouse gasses, by funding equivalent carbon dioxide saving elsewhere.
<b>Certification</b>	Businesses voluntarily comply with predefined criteria set by the certification scheme, which serve as a form of non-statutory regulation. Individuals or companies pay a price premium for a certified service or product. This premium is incorporated in the market price.
<b>Ecosystems</b>	A biological community of interacting organisms and their physical environment.
<b>Ecosystem services</b>	Benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as regulation of floods, drought, land degradation, and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other non-material benefits.
<b>Finance gap</b>	The difference between finance supply and finance demand, also called funding gap.
<b>Financial Sustainability</b>	The ability to secure a stable and diverse mix of financial resources, allocated in a timely manner and appropriate form, to cover full costs of sustainable management of the natural environment, to guarantee the provision of ecosystem goods and services to beneficiaries.
<b>Natural Capital</b>	Global stocks of natural assets including geology, soil, air, water and all living things. It is from natural capital that humans obtain a range of services, often referred to as ecosystem services, which make human existence possible.
<b>Payment for Ecosystem Services (PES)</b>	Monetary compensation for securing delivery of certain ecosystem services, where suppliers who manage the flow of services are paid by beneficiaries.
<b>Sustainable Finance Mechanisms (SFM)</b>	Financing mechanisms or revenue sources that contribute to the overall goal of financial sustainability.

## Appendix C: Acronyms

2W1B	Two Worlds One Bird
BCVF	Biodiversity Conservation Venture Funds
BIOFIN	Biodiversity Finance Initiative
BNMP	Bonaire National Marine Park
BVI	British Virgin Islands
CAD	Consortio Ambiental Dominicano
CBD	Convention on Biological Diversity
CBF	Caribbean Biodiversity Fund
CSO	Civil Society Organization
CSR	Corporate Social Responsibility
CTF	Conservation Trust Fund
DCNA	Dutch Caribbean Nature Alliance
DNS	Debt for Nature Swap
EFJ	Environmental Foundation of Jamaica
EAI	Enterprise for the Americas Initiative
FACRP	Fondes Amandes Community Reforestation Project
FCF	Forest Conservation Fund
FLQE	Fundacion Loma Quite Espuela
FONAFIFO	National Fund for Forest Financing
GCFI	Gulf and Caribbean Fisheries Institute
GEF	Global Environmental Facility
GRTDO	Grand Riviere Tourism Development Organisation
IFMDP	Integrated Forest Management and Development Program
JCDT	Jamaica Conservation and Development Trust
JET	Jamaica Environment Trust
KPI	Key Performance Indicator
MPA	Marine Protected Area
NGO	Non-governmental organization
NHCS	Nevis Historical and Conservation Society
NRWRP	National Reforestation and Watershed Rehabilitation Program
NTCI	National Trust for the Cayman Islands
OT	Overseas Territory
PA	Protected Area
PES	Payment for Ecosystem Services
PRCT	Puerto Rican Conservation Trust
REDD	Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
SCF	Saba Conservation Foundation
SFM	Sustainable Finance Mechanism
SIDS	Small Island Developing States
STENAPA	St Eustatius National Parks Foundation
STINAPA	Netherlands Antilles National Parks Foundation
TDR	Tradable Development Rights
TEEB	The Economics of Ecosystems and Biodiversity
TFCA	Tropical Forest Conservation Act
TNC	The Nature Conservancy
TVT	Turtle Village Trust
WWF	World Wildlife Fund