Towards a Sustainable and Resilient Saba

Nature-Inclusive Solutions for Invasive Species, Erosion Control, and Community Well-being



In collaboration with:

Stichting WeConnect and

The Ministry of Agriculture, Fisheries, Food Security and Nature (LVVN)

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Preface

The Nature and Environment Policy Plan serves as the central policy framework for nature management on the islands of Bonaire, Saba, and Sint Eustatius. This plan outlines specific goals, which the islands themselves translate into action through their own implementation agendas. Each island faces unique challenges and operates within a distinct context. However, one key element that can be strengthened across all three is the active involvement of the local population, which plays a vital role in the success of the policy plan.

In 2024, the Ministry of Agriculture, Fisheries, Food Security and Nature (LVVN), in collaboration with Stichting WeConnect, transformed this ambition into a concrete policy question: How can the islands take the lead in nature conservation through nature inclusivity?

address this, an action-oriented think tank—or *doetank*—was formed in partnership with Stichting WeConnect. This group consisted of Caribbean students and young professionals with academic backgrounds in biology, marine biology, ecology, nature conservation, and related fields. Over the course of a year, and alongside their studies and professional responsibilities, the group worked on this policy challenge. Drawing from both their subject-matter expertise and their deep understanding of the local context, they provided fresh and valuable insights.

They worked on an answer to the following questions:

"How can the islands take the lead in nature conservation through nature inclusivity?"

- 1. How can nature inclusivity stimulate the sustainable development of society?
- 2. How can different stakeholders be involved, including local residents, entrepreneurs, and international investors?
- 3. How can the LVVN nature policy be communicated effectively on the islands to ensure community involvement and foster community-building?

Like the islands themselves, the recommendations developed by the doetank are tailored and island-specific. They reflect the unique opportunities and challenges of each island and aim to promote a more inclusive approach to nature conservation in the Caribbean Netherlands.

This initiative would not have been possible without the valuable contributions of the many stakeholders who guided the *doetank* with their expertise and insights.



Introduction

Public engagement is essential to addressing social and environmental challenges (Reid et al., 2010). Researchers have emphasized that public attitudes and active participation play a vital role in effective environmental changes and sustainable decision-making (Anderson et al., 2021; Blake, 1999; Reed, 2008). Hence, a gap between the public and the government can reduce the effectiveness of initiatives to address environmental challenges. Therefore, it is important to include the public and stakeholders in order to successfully address and solve societal and environmental challenges (Anderson et al., 2021; Raymond et al., 2021; Reed, 2008). Community involvement contributes not only to the implementation of the project, but also to increasing public knowledge, which in turn leads to more sustainable and long-term solutions. For example, a study by Raymond et al. (2021) found that over 75% of participants improved their understanding of environmental sustainability and felt more confident in their ability to enhance their local environment after engaging in nature-based solutions (NbS) activities.

Additionally, public participation allows for the incorporation of local knowledge into conservation strategies, which enhances the effectiveness of NbS (Frantzeskaki, 2021; Sterling et al., 2017). Engaging local stakeholders and citizens in the development and maintenance of NbS projects can strengthen social cohesion and trust between stakeholders, furthermore, it may even increase support and successful implementation of the project (Sterling et al., 2017). Bridging the gap between the government, stakeholders, and the public enables the implementation of more creative, innovative, and long-lasting NbS that benefit both the community and the planet.

Caribbean islands face different types of environmental challenges. This project will begin by identifying the specific environmental challenges that occur on Bonaire, Saba and St.Eustatius that could be solved through NbS. To identify these challenges, both interviews and a literature review will be carried out. Using this information, further literature research will be conducted to develop detailed and tailored advice specifically designed for each island.



Saba

The island of Saba possesses unique ecosystems ranging from tropical dry forests at sealevel to tropical cloud forests at higher altitudes. Similarly to other Dutch Caribbean islands, Saba faces various challenges to its natural environment, both terrestrial and marine. The main problems affecting Saba's ecosystems are the proliferation of invasive roaming livestock and other invasive species (Debrot et al., 2018). The increasing population of invasive roaming livestock leads to overgrazing of native plant life particularly visible in the lower, less vegetated slopes of Saba, which in turn leads to more erosion. Additionally, this erosion leads to run-off and siltation which threatens the survival of marine ecosystems, specifically coral reefs (Debrot et al., 2018; Rogers & Ramos-Scharrón, 2022). Moreover, the erosion caused by this process is exacerbated by the effects of climate change such as sea-level rise and increased intensity of hurricanes (Knutson et al., 2020). Secondly, the growth of the population of other invasive species pose a threat to native animal populations, specifically invasive species such as wild cats, rats and non-native iguanas in terrestrial environments and the lionfish in marine environments (Debrot et al., 2018; Public Entity Saba, 2025). While the rats and wild cats pose a threat to the survival of nesting Red-billed Tropicbirds on Saba, the non-native iguanas are outcompeting the native Black Saba Iguana (Debrot et al., 2014; Public Entity Saba, 2025). Therefore, the proposed solutions will be focused on the management of these invasive species to ensure the restoration and conservation of native plant and animal populations.

How can nature inclusivity stimulate the sustainable development of society?

On the mountainous island of Saba, the relationship between people and nature is exceptionally tangible. Due to its limited space, isolated location, and extreme weather conditions, the resilience of natural systems is directly linked to the safety and well-being of the population. In this context, nature-inclusivity does not merely offer opportunities it is, in many cases, a necessary condition for sustainable development. Harnessing ecosystems such as rainforests, cliffside vegetation, and natural waterways for erosion control, water retention, and cooling contributes to robust infrastructure and liveable environments.

The Nature and Environmental Policy Plan Caribbean Netherlands (2020–2030) identifies the control of invasive species as a critical ecological priority for Saba. Rats, feral cats, and the recently emerging invasive Mexican green iguana (*Iguana rhinolopha*) pose serious threats to native biodiversity, food security, and even public health. Managing these species through ecologically responsible methods and incorporating barriers or trapping zones into the design of gardens, streets, and public spaces, enhances both **environmental protection and quality of life**. Community gardens, recreational areas, and schoolyards can be made safer and more biodiverse through such interventions.



The Public Entity Saba (OLS) plays a key coordinating role in linking spatial planning, nature management, and community development. **Education** is a cornerstone of this approach. Through local schools, children can learn about species conservation, ecosystems, and their own role in shaping the island's environment. By engaging students in field research, monitoring, or the design of nature-inclusive schoolyards, ecological awareness is translated into **practical action**.

In this way, nature-inclusivity serves as a **connecting principle** between ecological resilience, social cohesion, and sustainable self-sufficiency. Especially in a context where natural resources are scarce and infrastructure maintenance is costly; nature offers robust solutions—provided we actively integrate it into our spatial and social systems.

How can different stakeholders be involved, including local residents, entrepreneurs, and international investors?

Local residents

- Participation in pilot projects (such as school gardens or neighbourhood stewardship) fosters ownership and environmentally conscious behaviour (Cárdenas et al., 2021).
- An active role in community meetings, feedback sessions, and social media campaigns increases engagement and trust (Ferreira et al., 2020).

Public Entity Saba

- Facilitates transparent communication through regular information sessions, including open invitations to residents (Frenken, 2023).
- Supports social or cultural events (e.g., barbecues) that connect nature-inclusive themes with local experiences.

Saba Conservation Foundation (SCF)

- Promotes pilot projects focused on youth engagement and ecological restoration.
- Collaborates with the local government on outreach through social media and involvement in education initiatives.

Dutch Caribbean Nature Alliance (DCNA)

- Works to strengthen communication and knowledge-sharing on nature-inclusive projects through digital platforms.
- Assists in developing accessible campaigns with clear goals and broad stakeholder engagement.



An effective way to strengthen local involvement in nature-inclusive solutions on Saba is through **pilot projects that yield tangible results and are rooted in community support**. Examples include initiatives focused on rodent control, pet management, and native species protection. Such projects not only raise environmental awareness but also empower residents by showing how their efforts contribute to a healthier island (Cárdenas et al., 2021). Clear communication, active participation, and consistent feedback build **trust, ownership, and a sense of responsibility** among residents (Ferreira et al., 2020).

A concrete example is the control of rat populations, which threaten native birds and spread diseases. Instead of using feral cats—which themselves pose a risk to biodiversity—the emphasis is on mechanical traps. This approach requires **capacity building**: educational workshops can train residents and involve them in monitoring and trap maintenance. During the pilot phase, high-risk areas for species and habitats should be identified, after which buffer zones and priority locations can be incorporated into a management plan. The Saba Conservation Foundation (SCF) and the Public Entity Saba can collaborate with international experts such as BirdLife International, Island Conservation, and the Invasive Species Specialist Group (BirdLife International, 2021; Island Conservation, 2025; IUCN SSC Invasive Species Specialist Group, n.d.).

Another pressing issue is free-roaming cats, which prey on birds and reptiles. Through identification, registration, and enforcement, the number of stray cats can be reduced. At the same time, awareness campaigns can encourage cat owners to keep their pets indoors. Unowned animals can be deployed under supervision for pest control or adopted through community-based rehoming programs. This policy demands **clear communication and local engagement**, for example through social media and neighbourhood meetings (Lovejoy & Saxton, 2012; Briones et al., 2011). It also creates opportunities for **local employment in monitoring and outreach**.

Finally, the protection of the Saban black iguana (*Iguana melanoderma*) is urgently needed. This native species is being displaced by the invasive green iguana. Local residents can help by spotting and reporting green iguanas, removing eggs, and sharing sightings. International collaboration, for instance with Montserrat, which has experience in species protection, can support the development of effective action plans. By linking ecological restoration to community participation and monitoring—such as bird counts and habitat observations—a sustainable and inclusive approach to nature-inclusivity on Saba can be established (Frenken, 2023; Ferreira et al., 2020; Island Conservation, 2025).



How can the LVVN nature policy be communicated effectively on the islands to ensure community involvement and foster community-building

Annual Calendar: Events & Workshops on Nature-Inclusive Solutions.

The calendar on **page #9** provides an overview of planned activities aimed at promoting nature-inclusive solutions and engaging relevant stakeholders. The activities are spread throughout the year and range from inspirational and recreational gatherings to educational workshops and networking events.

Conclusion and Recommendations

Saba can take the lead in nature conservation by actively **integrating its unique landscapes**—from cloud forests to cliff coasts—**into the design of its society**. In a context of limited space, steep slopes, and climate change, nature is not a luxury but a necessity. By **using ecosystems as allies** in erosion control, food security, and public health, Saba can work toward a sustainable future in which natural systems offer protection to both people and infrastructure. A **holistic approach** to invasive species—driven by education, local participation, and international collaboration—is key to sustainable recovery. In this way, **nature-inclusivity becomes the foundation** for the development of a self-sufficient, safe, and connected Saba.

Spatial Planning and Infrastructure

Design village structures and public spaces in a way that helps keep out invasive species, retain water, and strengthen local biodiversity. Use natural barriers, elevation changes, and native vegetation to reduce erosion and restore habitats. *Example:* Integrate rat and cat barriers into street design and public gardens and use green strips as buffer zones around the black iguana's vulnerable habitats.

Erosion Control and Water Management

Promote vegetation restoration on slopes through erosion-reducing planting with native species. Create natural buffers that trap sediment before it reaches coral reefs. Utilize rainwater harvesting for households, agriculture, and drought mitigation. *Example:* Install infiltration ditches and tree lines on erosion-prone trails above villages and combine them with food forests or school gardens.

Living Environment and Education

Weave nature-inclusivity into daily life through education, community projects, and creative expression. Involve youth in monitoring, restoration efforts, and species protection. Link nature to identity and well-being. *Examples:* Launch an "Adopt an Iguana" program where schools monitor black iguanas and organize cooking demonstrations under the theme "Eat Invasive, Save Native."



Legislation and Behavior Change

Establish clear regulations for pet ownership and exotic species management, combined with social support, education, and enforcement. Use registration and microchipping campaigns to reduce cat-related issues and develop protocols for humane capture and relocation. *Example:* Provide subsidies or incentives to residents who make their gardens invasive-free or contribute to iguana identification and removal through a reporting system.

	1e kwartaal	2e kwartaal		3e kwartaal		4e kwartaal
Probleemstellingen	Knaagdier beheer en populatiecontrole		Kattenopsporing en verantwoordelijkheid van de eigenaar		Reptielen beheer en populatiecontrole	
Einddoelen	Het verminderen en beheren van de aantal ratten op het eiland			Verminderen van de invasieve populatie groene leguaan en het beheren en restoureren van de lokale populatie zwarte leguanen		
	Het minimaliseren van loslopende katten en opzetten van een registratiebeleid voor domestische katten					
Activiteit	 JANUARI Kick-off en Inspiratiesessie : "Draagkracht van ons ecosysteem" FEBRUARI:	 APRIL: Rattenbeheer – actie MEI: Kattenbeheer – bewustwording Kattenregistratie – opstart JUNI: Kattenregistratie – beleid Kattenbeheer - verzameten 		 JULI: Leguanen – identificatie en educatie AUGUSTUS: Leguanenbeheer – actie SEPTEMBER: Inter-eiland samenwerking 		 OCTOBER: Evaluatie - alle acties NOVEMBER: Gemeenschapsversterking DECEMBER: Reflectie en Strategiedag "Leren van 202x+ vooruit 202x"
Vorm & Locatie	 JANUARI: Plenaire bijeenkomst (Gemeentehuis) FEBRUARI: Lezinging en discussie MAART: Workshop data collectie en veldwerk 	APRIL: Veldwerk weken MEI: Lezing en discussie Workshop data collectie Registratiecampagne JUNI: Registratie evenementen in wijken Workshop: verantwoord huisdierbezit & sancties 		 JULI: Lezing en Workshop "Identificatie" AUGUSTUS: Veldwerk weken Kookworkshop: "Eet Invasief, Red Inheems" SEPTEMBER: Uitwisselingsbezoeken, Seminars en overleggen 		OCTOBER: Evaluatiebijeenkomst en storytellingavond met bewoners NOVEMBER: Presentatie voor de burgers en de ministeries (en BBQ + muziek) Training: zelfefficiënte natuurbescherming DECEMBER: Interne werksessie en netwerkborrel
Doelgroepen	Te betrekken (organisaties/groepen):Stakeholders:• Locale bewoners (12 - 50+ jr.)• Saba Conservation Foundation• Saba Comprehensive School• Dutch Caribbean Nature Alliance• Child Focus Foundation• Openbaar Lichaam Saba• Critical Ecosystem Partnership Fund• Saba Lions Club• Sea and Learn Foundation• Nationale Postcode Loterij• Saba Tourism Bureau• Public Entity of Monserrat• International Union for Conservation of Nature• The Spot• Saba Bank• GEF Small Grants Programme (SGP)• Local2030 Islands Network					