

Nature-Inclusive Solutions for a resilient Sint Eustatius

Integrating Ecology, Community, and Policy for Sustainable Development



In collaboration with:

Stichting WeConnect
and

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

Written by:

Dhaishendra Servania, Juliette Engel, Dylan van Arneman, Zakiya Lake,
Aiesha Fernando, Alejandro Gonzalez, Ferghall Flaun, Jerome de la Cruz

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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 (LNVN), 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 LNVN 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.

Sint Eustatius

The islands of Saba and Sint Eustatius along with Sint Maarten are all located on the hurricane belt (KNMI, 2023) and have withstood damages inflicted by hurricanes such as Irma and Maria in 2017 among many other tropical cyclones throughout the years (Eppinga & Pucko, 2018). These storms exacerbate island wide erosion - particularly that of the shoreline and cliffs. Eroded cliffs often lead to run-off and siltation during heavy rainfall and add pressures to the surrounding marine and coastal environments (STENAPA REFORESTATIA, 2024). In addition, the loss of local forest vegetation leaves islands such as Sint Eustatius vulnerable to climate change impacts such as intensifying hurricanes and sea conditions (i.e., changing wind and salt spray), and prolonged drought. Moreover, it was found that climate change exacerbates the impacts of pressures caused by roaming livestock and the proliferation of invasive species - endangering Sint Eustatius' unique ecosystems and biodiversity (Public Entity Sint Eustatius, 2021). However, suggested by Kelder et al. (2024), De Boer et al. (2024) and Nijpels (2023), there exists a complex and cyclical relationship between these impacts - intensifying one another. Considering the priorities taken for reforestation on the island of St. Eustatius, the proposed solutions will be focused on the increase of vegetation islandwide to ensure the restoration of plant population and forest ecosystems, and, additionally, focus on the conservation and preservation of existing vegetation.

How can nature inclusivity stimulate the sustainable development of society?

On Sint Eustatius, opportunities for nature-inclusive development lie in the restoration and reuse of natural systems that have long been under pressure. The volcanic soil, tropical dry forests, and coastal zones provide a natural foundation for sustainable agriculture, water management, and ecotourism—provided they are integrated into spatial planning and economic development. Nature-inclusivity here means, among other things: **taking natural processes into account** when planning neighbourhoods, trails, and facilities, and actively using vegetation, soil structure, and water retention systems for collective benefits.

The **Nature and Environmental Policy Plan Caribbean Netherlands** specifically highlights the importance of reforestation and controlling roaming goats, which cause significant damage to the island's fragile ecosystem. Overgrazing leads to the degradation of soil structure and fertility, resulting in erosion, drought, and declining agricultural yields. A nature-inclusive approach focuses on **area-specific management**, excluding goats from vulnerable zones through landscape barriers or smart fencing, while in other areas grazing can be strategically applied for nature management. Reforestation can occur simultaneously through **participatory projects** in which citizens, schools, and organizations work together on planting actions and landscape restoration.

The role of the Public Entity of Sint Eustatius (OLE) is essential—not only in policymaking but also in facilitating participation and education. Educational programs that combine local knowledge with ecological principles—for example, on water cycles, soil health, or agroforestry—can equip both youth and adults with skills that contribute to their livelihoods as well as the island’s sustainability.

By once again placing natural processes at the heart of spatial planning and daily life, Sint Eustatius can develop into a society that is not only **more resilient** to climate change and economic shocks, but also **more deeply connected** to its landscape, culture, and future.

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

Local residents

- Participation in pilot projects (such as school gardens and contour hedges) stimulates ownership and environmentally conscious behavior (Cárdenas et al., 2021).
- An active role in quarterly meetings, feedback rounds, and social media campaigns increases trust and engagement (Ferreira et al., 2020; Frenken, 2023).
- Volunteers can participate in planting actions and management, with incentives such as small compensations or discounts.

Public Entity Sint Eustatius

- Supports nature restoration through policy, land allocation, and funding.
- Facilitates transparent communication and organizes information sessions for local participation.

STENAPA

- Coordinates nature projects, maintains nurseries, and oversees planting and monitoring.
- Encourages knowledge exchange and cooperation with international partners.

International partners

- DCNA supports with knowledge sharing, coordination, and nature networks.
- ReLeaf Saba contributes to the exchange of successful nature restoration methods.
- The EU is a potential financier for large-scale nature-inclusive projects.
- Tourists can contribute as volunteers in planting and management activities.

An effective way to engage residents, entrepreneurs, and international partners in nature-inclusive solutions on Sint Eustatius is to establish tangible and community-supported **pilot projects**. Setting up school gardens, neighbourhood plantings, or contour hedges with local volunteers generates both practical environmental benefits and a sense of ownership. Communication through social media, neighbourhood meetings, and educational sessions plays a key role. Transparency and visible results are crucial for building trust between residents, government, and organizations (Ferreira et al., 2020; Cárdenas et al., 2021).

A key priority is **reforestation with native vegetation** on the island's degraded slopes. By planting contour hedges—rows of native trees, shrubs, and grasses along natural contour lines—erosion is reduced, water retention is enhanced, and biodiversity is restored. STENAPA can collaborate with the public entity and residents to establish, maintain, and monitor these hedges. Internationally, this approach has proven highly effective: in Honduras, soil erosion decreased by 99% through contour hedges. Tourists can also contribute via volunteer programs.

Local entrepreneurs also play a key role. By linking nature-inclusivity to economic opportunities—such as ecotourism, sustainable agriculture, or green events—a broader support base emerges. Examples include organizing nature markets or barbecue events where nature and culture come together. Businesses benefit from greening around their premises, increasing comfort and appeal for customers. Actively involving them in spatial and landscape development creates shared interests.

For international investors such as the EU, there are opportunities to support projects aligned with sustainable development goals and ESG criteria (Environmental, Social, Governance). This includes investments in large-scale reforestation, water management, or knowledge infrastructure, provided these are transparent, participatory, and measurable. DCNA and ReLeaf Saba can play a connecting role by enabling knowledge sharing, networking, and joint monitoring. This creates an ecosystem where both ecology and economy are strengthened—and where every stakeholder, local or international, can have a clear role.

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

To successfully integrate the LVVN nature policy into the society of Sint Eustatius, an integrated annual approach has been designed focusing on education, participation, and local collaboration. By anchoring the policy in concrete, recognizable actions spread throughout the year — from school projects to neighbourhood initiatives — a bridge is built between policy objectives and the daily lives of Statian residents. This approach fosters community-building by inclusively engaging various target groups, from youth and entrepreneurs to religious leaders, schools, and local authorities. The goal is not only to create support but also to establish sustainable ownership and shared responsibility for the restoration of nature and landscape on the island.

In the initial months, emphasis is placed on raising awareness about issues related to erosion, drought, and overgrazing. Through interactive presentations in churches, community centers, and schools, the connection between these challenges and nature loss is explained, as well as how restoration measures such as contour hedges and reforestation contribute to the island's liveability. Local organizations like STENAPA and the OLE play a coordinating role in this. Simultaneously, schools start educational vegetable gardens and curricula around soil health and water management.

In the following months, the focus shifts to action-oriented participation. Through neighbourhood planting campaigns and contour hedge projects, citizens, youth, and businesses are invited to physically contribute to landscape restoration. Local entrepreneurs are involved through greening of business premises and green events such as nature markets or 'green Sundays.' STENAPA and volunteer groups support planting, monitoring, and communication, using social media and local radio to make successes visible.

Towards autumn, the emphasis is on deepening and connecting. Inter-island cooperation with Saba and Bonaire is encouraged through knowledge exchange and joint campaigns. Tourists are also involved through volunteer programs around nature restoration. In the final months of the year, a joint reflection takes place in the form of a community event featuring storytelling, youth presentations, and a strategy day with policymakers. This creates an annual cycle in which communication, participation, and nature restoration go hand in hand — and where the Statian community actively shapes a nature-inclusive future.

The **Events & Workshops on Nature-Inclusive Solutions Calendar** can be found on **page 9**.

Conclusion and Recommendations

Nature inclusivity on Sint Eustatius can serve as a bridge between ecological restoration and cultural connectedness, where the landscape is interwoven once again with local traditions, stories, and community spirit. The impacts of erosion, drought, and overgrazing affect not only the landscape but also food security, water availability, and well-being. By treating ecosystems no longer as mere backdrops but as the foundation of development, space is created for restoration and community empowerment. Reforestation, contour hedges, and natural water management offer concrete opportunities to combine climate adaptation, education, and participation. In this way, nature is not only protected but also experienced and utilized — as part of a resilient and connected Sint Eustatius.

Spatial Planning and Infrastructure.

Integrate nature-inclusive principles in the development of residential areas, trails, and agricultural zones. Use vegetation, natural contour lines, and landscape elements to retain water, slow erosion, and restore habitats. *Example:* Establish contour hedges of native species along slopes and walking routes, combined with picnic spots or viewpoints to connect recreation and education.

Erosion Control and Water Management

Focus on vegetation restoration through participatory reforestation actions and the creation of natural water buffers. Encourage households and farms to collect and use rainwater wisely. *Example:* Launch a project where households or schools receive a rain barrel in exchange for participating in a planting action on barren slopes.

Living Environment and Education

Make nature visible and tangible in villages. Develop programs in which residents and youth contribute to monitoring, restoration, and education, linking nature to identity and local pride. *Example:* Develop school programs around “Trees of Statia,” where each class takes care of a tree species and studies or restores its surrounding ecosystem.

Legislation and Behavioural Change

Strengthen existing regulations regarding free-roaming livestock and invasive species, combined with behavioural interventions and social incentives. Promote area-based grazing management and structural cooperation with livestock owners. *Example:* Introduce a “goat-free zone” certificate for neighbourhoods or properties, linked to subsidies, educational materials, and assistance with fencing.

| | 1e kwartaal | 2e kwartaal | 3e kwartaal | 4e kwartaal |
|--|---|---|--|---|
| Probleemstellingen | De vegetatie op Statia is ernstig aangetast | | | |
| Einddoelen | <p>Herbebossing tegengaan door inheemse planten en bomen op strategische locaties te planten</p> <p>Locale bevolking stimuleren om deel te nemen aan herbobossingsacties</p> | | | |
| Workshops, inspraak momenten en lezingen | <ul style="list-style-type: none"> JANUARI Kick-off & Inspiratiesessie "Reforestatia" FEBRUARI: Workshop/lezing: "De agrarische geschiedenis van Statia" MAART: Actie: "Plantdagen - Vrijwillgers inheemse bomen planten + Adopt-A-Tree " | <ul style="list-style-type: none"> APRIL: Fruitmarkt: "Verkoop van tamarinde en guavaproducten" MEI: "Scholentour - hoe worden eenhemse planten beschermd?" JUNI: Stakeholderdag: "Samenwerken aan Natuurinclusiviteit" | <ul style="list-style-type: none"> JULI: Zomerchallenge jeugd: "Bouw een tuin met sterke omheiningen" AUGUSTUS: Actie: "Plantdagen - checkup en meer planten" SEPTEMBER: Workshopreeks: "Cultivating biodiversity Statia" | <ul style="list-style-type: none"> OCTOBER: Masterclass: "Verdienmodellen voor natuur" NOVEMBER: Landschapscafé: "Resultaten, verhalen & vervolg" DECEMBER: Reflectie & Strategiedag "Leren van 202x→ vooruit 202x" |
| Vorm & Locatie | <ul style="list-style-type: none"> JANUARI : Plenaire bijeenkomte (Gemeentehuis) FEBRUARI: Workshop (Buurthuis/Marshe) MAART: Excursie naar lokale openbare tuinen en groengebieden | <ul style="list-style-type: none"> APRIL: Centrale locatie (buurthuis/marshe) MEI: Lokale basis- en middelbarescholen JUNI: Vergaderdag in congreslocatie | <ul style="list-style-type: none"> JULI: In de omgeving van buurthuis - buiten AUGUSTUS: Met groep vrijwilligers de in-maart-geplante bomen bezoeken SEPTEMBER: Twee workshops in buurthuis of congreslocatie (2 weken tussen elke workshop) | <ul style="list-style-type: none"> OCTOBER: Enmalige sessie in buurthuis NOVEMBER: Caféavond met presentaties DECEMBER: Presentaties met samenvatting en evaluatie van het afgelopen jaar |
| Doelgroepen | <p>Betrokkenen en stakeholders:</p> <ul style="list-style-type: none"> STENAPA Public Entity of St Eustatius Dutch Caribbean Nature Alliance Gwendoline van Puttenschool Governor de Graaff Primary School | | | |