

## Darwin Initiative Main: Annual Report

To be completed with reference to the “Project Reporting Information Note”:  
(<https://www.darwininitiative.org.uk/resources/information-notes/>)

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes)

**Submission Deadline: 30<sup>th</sup> April 2024**

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### Darwin Initiative Project Information

<b>Project reference</b>	30-009
<b>Project title</b>	Developing Sustainable Sea Moss Farming Methods in Saint Lucia
<b>Country/ies</b>	Saint Lucia, (W.I.)
<b>Lead Partner</b>	Fauna & Flora
<b>Project partner(s)</b>	Ministry of Agriculture Fisheries, Food Security and Rural Development: Fisheries Department, Saint Lucia National Trust
<b>Darwin Initiative grant value</b>	£359,827.00
<b>Start/end dates of project</b>	May 2023 – April 2026
<b>Reporting period (e.g. Apr 2023 – Mar 2024) and number (e.g. Annual Report 1, 2, 3)</b>	May 2023 – March 2024 Annual Report 1
<b>Project Leader name</b>	Adams [REDACTED]
<b>Project website/blog/ social media</b>	N/A
<b>Report author(s) and date</b>	Adams [REDACTED] Cherry [REDACTED]; Ellen [REDACTED]; Henry [REDACTED] Frejhan [REDACTED] (April 2024)

## 1. Project summary

- **What biodiversity challenges is the project designed to address?**

In Saint Lucia the exponential growth of the sea moss aquaculture industry (*Eucheuma cottonii*- introduced, and *Gracilaria* species- native), which was particularly acute during the pandemic, poses a threat to coastal ecosystems. Currently, sea moss is grown in sheltered bays covered in seagrass, coral reefs and mangroves (Nelson, 2017). Thus, sea moss production areas overlap with critical habitats and carbon sinks, putting these habitats at risk of degradation. Although, sea moss cultivation could contribute to carbon sequestration if conducted appropriately (Duarte, 2017), but this is yet to be quantified locally.

Both sea moss pilot sites for this project, are near key biodiversity areas (KBAs); Praslin Mandele Point and Praslin Island, and Savannes Bay, which includes the Maria Islands and Point Sable Environmental Protected Area (PSEPA). At each of these sites unregulated sea moss farming poses a threat to coastal dry forests, as targeted species may be logged for cultivation materials. Research in other regions also suggests that anchored sea moss farming methods may inhibit seagrass growth through shading and consistent degradation. Additionally,

PET bottles used for floating monoline techniques may entangle marine life as well as degrading in the marine environment by contributing to marine waste. Moreover, Saint Lucia is considered highly vulnerable to climate change, including rising sea levels, temperatures, and severe weather events (Government of Saint Lucia, 2017 & USAID, 2021), which poses a threat to both coastal biodiversity and associated livelihoods such as sea moss farming.

Given these threats, the project aims to experiment with alternative growing techniques, which utilise sustainably sourced materials. As well as educating sea moss farmers on the risks associated with current practices in order to create a more sustainable industry with conservation at its forefront.

- **Why are they relevant, and for whom?**

The challenges addressed are relevant because they create a platform to explore a much-needed livelihood option that is compatible with the conservation of coastal/marine environments. Project partners will work with farmers, local communities, sea moss farming associations, and Governments and Non-Government organizations (NGOs) to collect and disseminate local ecological knowledge, research technical solutions, and train stakeholders on sustainable sea moss production.

- **What human development and wellbeing challenges (poverty reduction) is the project also intended to address?**

Coastal livelihoods and wellbeing in Saint Lucia, as an island and large ocean state, are highly vulnerable to climate change impacts. Sea moss farming has proven its resilience to these effects through species variation and their ability to adapt to variable growing conditions, including freshwater dilution, increased fertilizer concentration from runoff, rising temperatures, and sedimentation (FAO, 2003). This project will therefore support:

1. Increased livelihood opportunities, through the appropriate expansion of the sea moss industry and improved compliance with import/export requirements for farmers.
2. Improved gender equality in primary and secondary industries. Currently 37% of sea moss farmers are women, and we wish to maintain and expand opportunities for women in this industry.

- **How did you identify these problems?**

In 2021, a scoping survey was conducted by Fauna & Flora with the support of the Department of Fisheries. During this assessment, kayaks were used to navigate and collect data from sea moss farms, which was later used to create a base map of the farms across the pilot sites (Annex 11). Various unsustainable sea moss cultivation practices and their impacts were also identified, i.e. the use of plastic bottles in the farm infrastructure; trampling of seagrass beds; illicit felling of coastal dry forests for construction materials and the entanglement of endangered marine turtles in sea moss farm ropes. A socio-economic survey was also conducted with 188 farmers, in order to understand age, education level, the contribution of sea moss production to household income, farm size, product processing and subscription to sea moss cooperatives.

These results, alongside data from an ongoing BIOPAMA project led by Saint Lucia National Conservation Fund (SLUNCF) and Saint Lucia National Trust (The Trust) in the Pointe Sable Environmental Protected Area (PSEPA) as well as a GEF small-grant project for sea moss enterprise, and the GEF Integrated Ecosystem Management and Restoration of Forests project, have all identified the need to improve socioeconomic parameters, cultivation and participatory governance within the sea moss industry.

- **Project location**

The two pilot sites selected for this project are located along the Southeast coast of Saint Lucia (W.I.). The first being the Pointe Sable Environmental Protection Area (PSEPA). The total area encompasses approximately 1,038 hectares of land and sea” PSEPA Management Plan 2009-2014 (7).

The second pilot site, Praslin, has been described by the OECS (2021) as a small fishing community and the key location for commercial sea moss harvesting. This community, like other communities along the Southeast coast is also a vital bird nesting site, with Frigate Island Nesting Reserve (a protected area), located nearby. (**Annex 11**).

## 2. Project stakeholders/ partners

The core project partners are the Department of Fisheries (Ministry of Agriculture, Fisheries, Food Security and Rural Development) and Saint Lucia National Trust.

**The Darwin Project Steering Committee (PSC)** comprises of official partners (Saint Lucia Fisheries Department, SLNT, Saint Lucia National Conservation Fund (SLUNCF), Export Saint Lucia, Praslin sea moss farmers association (PSFA), Eau Piquant sea moss farmers association (ESFA)), as well as the Praslin Women in sea moss group, the Department of Sustainable Development and the GEF: Southeast Coast project team. The committee was established to ensure alignment with organizational objectives, manage risks, resolve issues, and facilitate communication among stakeholders throughout the project life cycle.

The first PSC meeting was held on March 19<sup>th</sup> (see **Annex 10**). Meetings will be held once every quarter to address project progress and provide guidance for decision-making.

The table in **Annex 10** provides an outline of the participation of partners in meetings and workshops conducted to date, and the key contributions of key project partners and stakeholders are outlined below:

- **The Saint Lucia Bureau of Standards** has provided one training session with members of the Praslin and Eau Piquant Sea Moss Associations educating a small group of farmers on the Standard Operating Procedures required for farmers products to be safe for consumption. The training provided farmers with the required knowledge needed for various export certifications.
- **The Eau Piquant sea moss farmers association, Praslin community women in sea moss group, and Praslin sea moss farmers associations** have all paid a critical role in sharing and participating in project activities. Each group has willingly participated in previous workshops and trainings emerging from project activities and is constantly sharing new opportunities with members, thereby improving the visibility of the project.
- **Japan International Cooperation Agency (JICA)** office in Saint Lucia has assisted in the experimental trial plots and has attended all field exercises. They provided technical expertise and training to the sea moss farmers on best practices in cultivation and harvesting. They have provided on-site demonstrations on the construction of sustainable of rafts with an overall intent of improving productivity and quality for the farmers.
- **Ministry of Agriculture, Fisheries, Food Security and Rural Development – Department of Fisheries** – The Ministry of Agriculture continues to provide the necessary support in connecting farmers to the project. Their support includes technical expertise and training to farmers, as well as guidance on site selection, cultivation practices, disease management, and post-harvest handling.
- **Ministry of Physical Planning, Housing, Urban Renewal and Local Government-** The Ministry of Planning has been providing the project with guidance on the designate zones conducive to sea moss farming, ensuring that it aligns with environmental conservation goals and doesn't conflict with other land uses. The ministry oversees the EIA process, ensuring that the project complies with environmental regulations and mitigates any adverse impacts on marine biodiversity or coastal communities.
- **SLUNCF** and the **GEF: Southeast Coast Project**, provided initial support for the project through consolidation of stakeholder engagement initiatives and information sharing. With both organizations on the Project Steering Committee, we will continue to draw on their experiences. Specifically, the SLUNCF sea moss farming demarcation exercise will be used to inform activity 2.4 in Praslin. While we will draw on efforts in the GEF: Southeast Coast project, specifically in reference to 1) developing geoprocessing and data

management platforms, and 2) identifying opportunities to collaboratively deliver training, research and public awareness.

- **British High Commission** – We remain in close contact with the British High Commissioner through regular emails and telephone exchanges. The commissioner attended the Darwin inception meeting on 5<sup>th</sup> September 2023 and invitations are normally extending for our regular training sessions and activities.
- **Technical Specialist** - In March 2024 Mr. Newton Eristhee, a Marine Technical Specialist, was contracted to undertake a site suitability assessment for sea moss production, the results from this will support several project activities as outlined later in this report. The three main tasks assigned were to:
  1. Perform site suitability and carrying capacity assessments for sea moss farming along Saint Lucia's southeast coast;
  2. Establish an ongoing monitoring system to track the impact of sea moss farming on biodiversity;
  3. Assess the state of marine biodiversity at key sites along Saint Lucia's southeast coast to inform ongoing management planning with relevant stakeholders.
- **Technical Consultants:** Ms. Euthalia Philgence and Ms. Anya Knoetze, were contracted through the Saint Lucia Bureau of Standards. These individuals and the governing bodies they represent, have supported the first two food safety trainings and introduced the development of standard operating procedures for the growing industry.

Working in partnership with the different organisations has exposed the project to different skills, expertise, and resources. For example, working with JICA, our farmers have been exposed to innovative planting methods. JICA is also conducting experimental sea moss plots on the island and have joined our training sessions, where they were able to share operational and financial risks or challenges associated with different farming methods. Sharing these has made it easier to navigate uncertainties.

Additionally working in partnership, especially with the Department of Fisheries and SLNT, has expanded our network and opened new opportunities for growth, expansion and development of shared goals. These new opportunities have included increased collaboration, identifying untapped markets, new sustainable sea moss methods, and research and development initiatives to improve new farming techniques.

Although we have not experienced any major challenges working with partners, it is worth noting that we recognized the undulating levels of interest and time commitment, particularly with Export Saint Lucia. A decrease in the level of commitment and time allocated from partners can significantly impact the project implementation and cause delays in implementation.

### **3. Project progress**

#### **3.1 Progress in carrying out project Activities**

##### **Output 1:**

##### ***1.1 Identify drivers of biodiversity loss through desk review, community consultations, interviews, and participatory threat analysis; collect and compile existing baseline biodiversity data; identify gaps (Y1).***

Through a series of community consultations (funded during the preceding Arcadia Marine project), consultations with Darwin project partners, and findings from desktop research, the following drivers of biodiversity loss were identified:

- **Trampling and shading:** studies overseas noted over-crowding of macroalgae farms on seagrass beds can lead to stunted and decreased shoot density because of shading (Eklöf, et al., 2006; Hasselström et al., 2018; Moreira-Saporiti et al., 2021; Duarte Moreno,

2021). Stakeholders also mentioned uncertified farmers often drag full sacks of harvested material along the seabed damaging seagrass in the process.

- **Unintentional removal of juvenile species:** Some studies identified changes in the diversity of herbivorous fish and invertebrate species in farms, which act as temporary habitats of crustaceans and juvenile fish (Corrigan, et al., 2022; GOSL, 2021). Although this could be viewed as improving habitat opportunities for marine biodiversity, proper handling techniques are needed to ensure species are not removed during harvesting.
- **Solid waste and marine pollution;** current methods of sea moss cultivation utilize PET bottles to replace floating buoys as they are low cost and readily available. However, with extreme weather events, bottles can be dislodged and add to existing marine plastic pollution, as can indiscriminate disposal of materials such as rope.
- **Climate change:** As mentioned previously, Saint Lucia 's environment and economy are susceptible to effects of climate change. Rising sea levels, temperature variabilities and extreme weather events pose direct threats to critical habitats and species. Threats associated with species loss, such as coral bleaching and parasitic spread, are already affecting the region, and insufficient research exists on climate change interactions with sea moss production.
- **Invasive species:** Invasive species such as the macroalgae *Sargassum*, and seagrass, *Halophila stipulacea*, are both prominent in the pilot sites. *Sargassum* has a slew of challenges associated with it, including decreasing water quality and increasing shading both impacting the health of benthic habitats and the species within it.
- **Land-use change and Human Activity:** Urbanization, hotel development (see section 3.4), deforestation for charcoal production and materials for sea moss production, can increase run-off and pollution associated with it. Recreational activities on land and within the seascape can also influence biodiversity population distribution. Current protected area boundaries and regulations allow deforestation of coastal forests in buffer zones and along tributaries surrounding pilot sites. This influences sea moss production and can alter site suitability.
- **Removal/Overharvesting of wild stock;** The current lack of training and unregulated production of sea moss presents opportunity for overharvesting and removal of wild stocks. Unlike farmed sea moss, wild stocks provide permanent habitat for juveniles, and it is therefore critical for maintaining populations of fish and crustacea.

### **1.2 Elaborate and implement biodiversity monitoring plan (water quality, seagrass beds, coastal dry forest, turtle entanglement, other ecosystem health indicators) and information management system (Y1-3).**

A biodiversity monitoring plan has not yet been created or implemented due to the delayed recruitment of a technical specialist. However, a consultant has been hired to undertake water quality testing, particularly focusing on turbidity, nitrogen, phosphates, salinity and other factors impacting optimal sea moss growth and environmental health of sea moss farms. The consultant will also identify sources of pollution and map recreational, navigational, fishing priority areas, hotels and other maritime social and economic infrastructure. Following the creation of this baseline, the technical specialist will provide a guide on biodiversity monitoring protocols for pilot sites, which can be implemented by the Fisheries Department.

Additionally, a brief survey was conducted on March 6th, 2024, where 15 farmers were questioned on their recollections of turtle entanglement within Savannas Bay. One incidence of turtle entanglement was recalled, which was 2-3 years ago, and no recent incidences were identified. A similar survey will be conducted in Q1 of year 2 in Praslin Bay, and throughout field visits and other stakeholder engagement activities.

### **1.3 Develop and apply the Site Suitability Assessment tool and Site Carrying Capacity tool in the two project sites to support identification of viable farm sites (Y1-2).**

A consultant was hired in March 2024 to assist in meeting the requirements of activities 1.2 and 1.3. As a result of the delayed hiring for this consultant, this activity has been postponed until July 2024 (Q1-Y2). Despite this delay, the time elapsed has allowed us to gather more stakeholder feedback which may be useful to the consultant. Consultancy details are included in **Annex 5**.

### **1.4 Conduct desktop review and partner consultations to identify locally appropriate sustainable farming techniques/best practice (Y1-2).**

In collaboration with the Department of Fisheries, discussions were held with farmers regarding locally appropriate sea moss farming methods. During the Darwin Inception meeting, farmers and supporting agencies present, provided potential suggestions on the designs and the type of materials that can be used. Suggestions made are outlined in annex 6. We consulted partners with technical expertise in sea moss farming (JICA), as discussed under activity 1.5 below.

### **1.5 Trial identified sustainable farming techniques, led by Fisheries Department with lead farmers (Y1-2).**

Several techniques and planting methods have been discussed with partners and associates fulfilling activities 1.4 and 1.5. At this present stage, three designs have been tested and deployed in Savannes Bay. Reference images showing the before and after comparisons of techniques tested to data are presented in **Annex 7**.

The first two techniques were tested and deployed on March 8<sup>th</sup>, in consultation with the Japan International Cooperation Agency (JICA). The first quadrat PVC raft design was broken within a few days of deployment due to the strong currents and wave energy. The second design, a two-sided PVC raft, remained intact, however farmers encountered challenges with the raft shifting as the anchors were not heavy enough to combat the current's drift. Additional anchors were added to this raft soon after, but unfortunately, this raft was also destroyed from boat traffic one month later.

Two octagonal PVC rafts were also deployed on April 18<sup>th</sup>, near the previous two square rafts. There were some challenges associated with deployment of these larger rafts, which compromised the integrity of the design during transport, and one joint was detached and need to be fixed on the boat. One raft broke three days later due to strong currents and insubstantial anchors, and the second was damaged in boat traffic. Bamboo rafts and other production methods are scheduled to be trailed in Q1-Y2.

## **Output 2:**

### **2.1 Develop and implement stakeholder engagement plan and grievance mechanisms for PSEPA and Praslin Sea moss associations (Y1).**

A draft stakeholder list and engagement plan comprising 40 agencies and groups was created during the preceding Arcadia project and was adapted during the Darwin Inception meeting (See Annex 8). A grievance mechanism is being drafted but has not yet been instituted as we are collecting feedback from the project steering committee and other stakeholders.

### **2.2 Establish standard operating procedures (SOPs) for farmers associations and designate farmer/community representatives (Y1).**

A total 46 farmers from three farmer organisations and community groups received training in Standard Operating Procedures (SOPs) and food safety and quality in March-April 2024 (Praslin community women in sea moss; Eau Piquant sea moss farmers association and the Praslin sea moss farmers association). The participants and farmers got an opportunity to prepare and present SOPs for their sea moss establishment. The farmers are now equipped with food safety knowledge, and the technical skills required for ensuring that their product is safe from sea to table. The first training session was conducted in collaboration with a

representative from SLBS (Saint Lucia Bureau of Standards) the nation body responsible for certifying products for international export markets.

### **2.3 Build individual and organisational capacity of farmers associations and representatives, including for effective participation in project steering committee (Y1-2-3).**

One Project Steering Committee was held on March 19, 2024. This meeting brought together stakeholders from 8 organisations (Eau Piquant sea moss farmers association, Praslin sea moss farmers association, Praslin community women in sea moss, GEF: Southeast Coast Project, Department of Fisheries, SLUNCF, SLNT and Fauna & Flora). The meeting discussion focused on possible synergies and the organisations had an opportunity to present their workplans and share their active projects. It was agreed that the PSC will meet quarterly.

### **2.4 Establish Praslin community working group (including farmers association representative) to discuss management of the coastal zone and marine management area and support demarcation (Y1-2).**

This activity has been delayed in lieu of a similar on-going initiative in another pilot site, Savannes Bay. The Saint Lucia National Conservation Fund, through the support of a BIOPAMA project and the preceding Fauna & Flora Arcadia Marine Project, is creating a management plan for Savannes Bay, including the demarcation of sea moss farms and establishment of a supporting governance structure. The context in Praslin is similar to Savannes, with both becoming overwhelmed with sporadically placed sea moss farms, leaving limited space for other resource uses and potentially impacting the marine environment. We therefore anticipate that solutions from Savannes can be used as a blueprint to create a viable management system in the Praslin community. Therefore, this activity in Praslin will be conducted in Y2, incorporating lessons from Savannes.

### **2.6 Create and activate the Fisheries Department farms monitoring log and sea moss management information system (Y1-2-3).**

Sea moss farmer registration is occurring under the guidance of the Department of Fisheries. A scoping survey conducted by Fauna & Flora and the Department of Fisheries in 2021 created an information baseline for current areas of sea moss production and will be used to inform the monitoring log. As mentioned previously, the on-going site suitability assessment, to be completed in July, will be used to support monitoring efforts of sea moss farms and their locations. The Department will create a schedule for farm visits upon receipt of this report to create a viable plan for monitoring and information management, although more work is needed to ensure that the department has sufficient human resources to maintain monitoring.

## **Output 3:**

### **3.1 Develop and implement Knowledge/Attitudes/Practices (KAP) surveys and hold workshops to carry out a participatory impact assessment (Y1).**

The KAP survey was drafted within the first half of year 1. However, implementation and assessment will be completed into year quarter 1 of year 2, informed by previous workshops held (**Annex 10**).

### **3.2 Test heavy metal contents and other food safety parameters and survey disease in sea moss (Y1-2).**

A consultant was hired in March to undertake this activity, the activities are currently ongoing. The consultant will submit a final report at the end of June 2024. (**Annex 5**).

### **3.3 Carry out Training Needs Assessment with farmers, processors, SLNT and Fisheries Department (Y1).**

A Sub Grant Agreement has been signed between Fauna & Flora, the SLNT will be supporting Fauna & Flora to hire, train and carry out the training needs assessment with farmers and processors under the guidance of the Fisheries Department.

### **3.4 Update the SLNT's CVQ and support/encourage farmers to register (Y1-2).**

Under the sub-grant agreement with SLNT, support will be provided for the update of the SLNT CVQ. The agency has previously assisted in the design of the National Vocational Qualification Certificate Competency Standards in Sustainable Sea moss Production and thus has the competency and capacity to proceed.

### **3.5 Organise training using knowledge/resources from U.S. Department of Agriculture, CRFM, Saint Lucia Bureau of Standards and Environmental Health Department, in compliance with import/export and domestic requirements (Y1-2-3).**

As mentioned briefly under output 1 and section 2 above, SOP and food safety training has commenced to prepare farmers to improve sanitary conditions in sea moss production. These efforts will improve the ability to meet international standards for export, particularly for the British Standards Institution (BSI) and the US Food & Drug Administration (FDA). The project has also held preliminary conversations with Export Saint Lucia to discuss opportunities for engagement in the next phases of the project and requirements to strengthen the standard of sea moss grown in Saint Lucia.

### **3.6 Train farmers and processors in best environmental and sanitation practices, and production and marketing of high-quality natural products for local and export markets (Y1-2-3).**

Two training sessions in SOP and food safety have occurred to date, with additional training sessions planned for the upcoming year (see output 1 and section 2 above). On-going raft culture methods are being experimented at pilot sites using PVC, with the aim of identifying new techniques for sea moss production independent of coastal dry forest vegetation, required for the locally favoured but unsustainable method of anchored and PET floating monolines.

### **3.9 Assess new potential export markets (Y1-2-3).**

SOP training has introduced farmers to the minimum standards for meeting sea moss export requirements guided by Export Saint Lucia and The Saint Lucia Bureau of Standards. Project leads have also held preliminary discussions with Export Saint Lucia with reference to developing geographic indicators, which will be refined in further stages of the project.

## **3.2 Progress towards project Outputs**

- 1. Environmental impact reduction and mitigation measures are implemented as standard and best practice in two of Saint Lucia's core sea moss farming areas (covering c.120 hectares), preserving coastal ecosystems and biodiversity.***

#### **Baseline condition:**

The anchored monoline and floating monoline methods are most commonly used for sea moss cultivation, with 75% of farmers using some variation of these techniques. Using PET bottles as a flotation device for the monoline was most common out of the four techniques presented to the farmers, presenting risks associated with increased marine plastic pollution. Sourcing materials (forest wood) for anchored methods also pose a risk to dry coastal and mangrove forests.

#### **Change recorded to date:**

To date, alternative farming methods are being trialled and suitable sea moss farming sites will be identified through the consultancy. Developing a biodiversity monitoring plan from these will allow assessment of change towards this output. Experiments for sustainable sea moss techniques are on-going with the involvement of local sea moss farmers and supporting agencies such as JICA and sea moss associations working within pilot sites. Stakeholder consultations have also driven farmers to have open discussions regarding the method of production and harvest techniques that could be negatively impacting the surrounding ecosystem as well as potential solutions.

A consultant has also been hired and will design a biodiversity monitoring plan, and baselines established by the consultant will be used to assess changes after implementation of environmental impact reduction and mitigation measures in Y2 and Y3.

### **Source of evidence for this change:**

The Darwin inception meeting minutes from September 5th, 2023, highlights potential problems and solutions discussed among stakeholders with reference to sustainable cultivation practices. (see **Annex 6**).

### **2. Participatory local governance and management mechanisms and improved national policy frameworks are adopted, supporting the widespread knowledge of, and effective enforcement of, sea moss farming regulations.**

#### **Baseline condition:**

Currently, there is no legislation regulating the use of the seabed for sea moss production. Sea moss farmers, fisherfolk and other users previously had a verbal agreement on the way to divide shared space, noted by farmers and the Department of Fisheries during previous workshops. However, after an influx of new participants in sea moss production in 2020, newer or temporary farmers may not have been privy to previous informal agreements, thus increasing conflict among resource users. The project is providing ongoing support and training to sea moss associations as key stakeholders for strengthening local governance.

#### **Change recorded to date:**

The Department of Physical Planning and Development is the Government Agency with jurisdiction on the seabed and marine spatial planning. It is now recognized that the department is a major stakeholder and would be invited to be part of the project Steering Committee (PSC). There have been two meetings, dialogs and submission of geographic information system (GIS) outputs, including maps and shapefiles with the department who are now initiating the process for legal support for the sustainable sea moss farming. Outputs from the site suitability assessments will provide valuable data for legal decision on marine spatial planning for sea moss farming. The project steering committee has been established to validate and make decision on project outputs, including decisions on marine spatial planning relating to sea moss farming, and the Department of Physical Development and Planning will be added as a member of the PSC in future meetings.

### **Source of evidence for this change:**

A summary of the information shared with the Department of Physical Development and Planning has been included in Annex 12.

### **3. Sea moss farmers and their households benefit from increased capacity to implement sustainable sea moss production practices and improved access to market opportunities.**

#### **Baseline condition:**

A scoping survey conducted in 2020 by Fauna & Flora and the Department of Fisheries found 26% of farmers surveyed reported 81-100% of household income is provided directly from the sale of sea moss products. 34% of sea moss farmers contribute 61-80% of household income directly from product sales. 32% of households contribute 41-60% of total income from sea moss. Sea moss sales provide between 0%-40% of income for the remaining 8% of households assessed.

Based on the scoping survey conducted, 100% of sea moss is processed through drying, but only ~17% of sea moss is used to create alternative products such as beverages, gels and cosmetics.

Roughly, 60% of sea moss farmers are members of cooperatives. Of the 40% of farmers who are not members, 96% are willing to register. This will provide more opportunities for support, training and export market opportunities to newly registered individuals.

#### **Change recorded to date:**

No additional surveys have been completed to date. However, SOP training conducted in March and April commenced productive conversations among stakeholders on improving

access to market opportunities which will continue in future phases of the project with more support from Export Saint Lucia and the Saint Lucia Bureau of Standards.

**Source of evidence for this change:**

Notable concerns from SOP meetings are highlighted in annex 6.

**4. Best practices and lessons learned are shared and promoted at national and regional levels to influence wider policy and practice in sea moss farming.**

**Baseline condition:**

An unpublished manual for sea moss farming methods written by Thomas Nelson (2017) entitled; “Sea moss Farming in the Caribbean, A Practical Guide” is used to train sea moss farmers. Other supporting material such as the CANARI (1997) resource guide is also used. National Vocational Qualification (NVQ) and Caribbean Vocational Qualification (CVQ) material developed by the Technical Vocational Education Training UNIT (TVET) for previous sea moss project has been used as baseline to guide the training and qualification.

**Change recorded to date:**

Activities for this output have been planned for years 2 and 3 of the projects. However, on-going assessments of the existing CVQ and trial method testing will be used to inform next steps for this output.

**Source of evidence for this change:**

Discussions convened during the Darwin inception meeting and SOP trainings with sea moss farmers reflecting the need and willingness to change as mentioned in the **Annex 6** below.

Progress against individual Output indicators is documented in Annex 1.

### **3.3 Progress towards the project Outcome**

***Outcome: The implementation and effective governance of sustainable sea moss farming in two coastal areas provides a much needed, diversified, and viable livelihood option and avoids threats to coastal ecosystems and biodiversity.***

*Indicator 0.1 ≥50% of targeted sea moss farmers (n≥200, target: 50% women) in Praslin and PSEPA demonstrate increased capacity to undertake sustainable growing techniques, alternative materials, and best environmental practices in Y3 compared to Y1.*

Discussions with eleven farmers during the initial training session in March 2024, suggests farmers are willing to trial new methods if low cost and proven viable (see **Annex 10**). The Department of Fisheries has previously assisted farmers in switching from PET bottles to alternative floatation mechanisms for long line methods. Farmers openly discussed the challenges and successes with new equipment, which suggests they may also be willing to adopt techniques introduced by this project, once proven viable.

*0.2 By end Y2, participatory governance mechanisms are established and functioning for two pilot sites, representing 11 communities and an estimated 200 sea moss farming households, and involving local authorities.*

A Project Steering Committee (PSC) was established to have active participation of all stakeholders in decision-making processes. We believe this will increase transparency, accountability, and ensure all represented agencies have a voice in shaping those decisions. A project inception meeting held prior to the PSC meeting brought key stakeholders together to discuss the objectives, scope, roles, responsibilities, and expectations related to the project.

Other local community groups operating within the Point Sable Environmental Protected Area (PSEPA) were engaged earlier under Fauna & Flora’s Arcadia project to discuss on-going issues related to sea moss farming on marine activities and the lack of established governance

structures. There were also stakeholder dialogues which included discussions between government and non-government agencies, to identify common goals, address concerns.

Support has also been provided to the BIOPAMA project in developing and implementing a management structure for Savannes Bay which will be replicated in other sea moss growing areas such as Praslin- pilot site 2. Fauna & Flora is aiding with the construction of demarcation buoys to “*facilitate the implementation of a management structure to govern the activities within the bay*”.

*0.3 ≥50% of targeted sea moss farmers (n=≥200) meet proposed sanitary requirements for food safety by Q3Y3, against baselines established in Y1.*

SOP trainings commenced in last quarter of year 1. These sessions have been guided by food regulatory bodies from the Saint Lucia Bureau of Standards and have provided 46 farmers an overview of food safety and handling requirements for product export.

On-going and consistent stakeholder outreach has proven to be a place for controlled, healthy, proactive discussion among participating bodies. These discussions provide an opportunity for problem and solution mapping which can be implemented throughout the funding period through project activities.

*0.4 By Y3, no forest-based materials are extracted from coastal tropical dry forests for use in sea moss farms in PSEPA and Praslin.*

On-going pilot tests in tangent with strengthening and enforcing legislation of protected coastal ecosystems will deter the use of these materials while providing alternative materials and methods of growth.

*0.5 In Y3, ≥75% of women and men in participating households in PSEPA and Praslin (n=≥200 households) report significant improvements in one or more dimensions of well-being (e.g., income or personal security, more equitable relationships with other market actors, increased agency, better gender relations).*

This indicator has yet to be tested, however, as described previously, “on-going and consistent stakeholder outreach has proven to be a place for controlled, healthy, proactive discussion among participating bodies.”

### **3.4 Monitoring of assumptions**

#### **Assumptions of Project Outcome:**

- 1. Even as Saint Lucia’s economy and employment levels improve following the collapse of tourism during the Covid-19 pandemic, local people remain keen to diversify their livelihoods and avoid sole-source dependence on tourism.***

This assumption remains true. Overall, while tourism can provide significant economic opportunities for local communities, diversifying livelihoods ensures greater resilience, stability, and sustainability in the face of uncertain circumstances.

- 2. In the absence of viable livelihood options, including employment in the tourism industry, local people are more likely to engage in unsustainable livelihood pursuits, including poaching and deforestation.***

We continue to see an increase in the establishment of sea moss farms which means more felling of trees are taking place. Our project has developed mitigation strategies including gathering additional data through the site suitability assessment, and introducing farmers to sustainable farming methods which will reduce reliance on deforestation or other unsustainable livelihood activities.

### **3. *There are no major, adverse policy or land use changes within the project area.***

Two major hotel developments are planned for the surrounding areas of pilot sites i.e. The Canelles Resort near Savannes Bay, and the Westin Le Paradis Beach and Golf Resort in Praslin. Through the previous Fauna & Flora Arcadia project, a representative from the Canelles Resort has been part of the stakeholder engagement process through participatory mapping of potential areas of development. The developer representative and other stakeholders present identified potential areas of conflict and solutions for each. Conversations with one sea moss farmer revealed that the Westin Le Paradis Beach and Golf Resort development has commenced engagement with Praslin Sea moss farmers, and the Ministry of Sustainable Development through the GEF: South-East Coast project. However, Fauna & Flora has not engaged developers at yet. This assumption is therefore being challenged, as coastal hotel developments may have impacts on water quality in sea moss areas.

### **4. *The project design accounts for existing public health/Covid-19 policies and guidelines on assembly and travel and assumes no new restrictions are introduced.***

This assumption holds true as Covid-19 regulations are no longer in place.

### **5. *Severe weather, including hurricanes, does not affect project activities. The project will be planned around seasonal hurricane activity.***

Although pilot sites have not been affected by extreme natural weather events, abnormally severe ocean conditions may still affect the ongoing site suitability assessment fieldwork.

#### **Assumptions of Output 1**

- 1. Farmers understand and espouse the value of using substitutes for wood and plastic bottles in their sea moss farming practices, and substitute materials are accessible and cost-efficient for farmers and do no environmental harm.***

Feedback provided by farmers who have attended meetings thus far have indicated an increased understanding of the potential effects of the industry on biodiversity and the importance of being able to share this with more farmers who are not yet involved in this project.

- 2. Data on biodiversity and ecosystem health in project sites from previous initiatives are available and suitable to inform the baseline project data set and underlying drivers of biodiversity loss.***

Project partners (the Department of Fisheries and SLNT) collaborative agencies (specifically the GEF: Southeast Coast Project, and Saint Lucia National Conservation Fund), and Fauna and Flora's preceding Arcadia project share project findings on ecosystem health to inform baseline data.

#### **Assumptions from output 2**

- 1. Increased knowledge leads to improvements in attitudes and behavior.***

This assumption holds true: as mentioned previously, farmers who have engaged in conversations with project managers either in the field or structured meetings, are willing to employ suggested changes. For example, in previous years the Department of Fisheries engaged in a project identifying alternatives to PET bottles for the floating monoline technique which was later employed by several farmers.

- 2. The national government continues to support sea moss farming as a viable, sustainable livelihoods opportunity for local people and as an opportunity to diversify the economy away from dependence on the tourism industry.***

The Saint Lucia Bureau of Standards is supporting on-going training with sea moss farmers to expand potential for industry export markets, thereby diversifying the economy away from dependence on the tourism industry.

### Assumptions of Output 3:

1. ***Climatic events, including hurricanes, do not jeopardize the viability of sea moss farms.***

Discussions with farmers have shown that although there are risks of losing farms during extreme events, it is possible to harvest prior to the event to save the harvest.

2. ***Current distributor, retailer, and consumer interest in good quality local products and services, both domestically and internationally, is maintained and increased.***

There has been a growing awareness and appreciation for the economic, social, and environmental benefits of supporting local businesses. This interest is further bolstered by marketing efforts highlighting the unique value propositions of locally sourced goods and services, as well as ongoing initiatives to promote sustainability, ethical production practices, and community engagement within the local business ecosystem. Additionally, favourable government policies and incentives may contribute to the sustained interest in local products and services by fostering a conducive environment for their growth and competitiveness in both domestic and international markets

3. ***Sargassum landings do not increase to the point where they threaten the viability of sea moss farming in Saint Lucia.***

There have been no records of increased sargassum surges, thus this assumption holds true.

### Assumptions of Output 4:

1. ***Decision makers, partners and stakeholders are receptive to the learning generated by the project.***

This assumption is vital for the success of the project. When decision makers, partners, and stakeholders are receptive to the learning generated by a project, it fosters an environment of continuous improvement and adaptation. It allows for feedback loops that can refine strategies, enhance processes, and ultimately increase the project's chances of achieving its goals. Embracing learning also demonstrates a commitment to growth and innovation, which can strengthen relationships and build trust among all involved parties. Transparent communication, sharing of insights, and a willingness to incorporate feedback into decision-making processes is paramount.

2. ***Problems and solutions at the project sites are applicable to other areas of Saint Lucia.***

On-going conversations often reference pilot projects in other areas of the island. The monitoring protocols which will be developed for sea moss sites are replicable island wide.

### 3.5 Impact: achievement of positive impact on biodiversity and poverty reduction

- **What impact was in your original application form?**

Sustainable sea moss farming in south-east Saint Lucia, and ultimately throughout the island, improves community wellbeing and safeguards healthy coastal ecosystems, supporting thriving populations of critically endangered keystone species.

- **What contribution is your project making to the higher-level impact on biodiversity conservation?**

Saint Lucia, a 616km<sup>2</sup> Small Island Developing State in the Lesser Antilles, possesses high levels of biodiversity relative to its size, including over 250 fish and 50 coral species (1,2). Sea moss farming is closely intertwined with biodiversity conservation considerations as farms occur in the same shallow, coastal areas that host Saint Lucia's most important biodiversity and habitats, including coral reefs, seagrass meadows, and mangroves (6). These areas offer important habitat for juvenile fish and crustacean species, and are proximal to coastal tropical dry forests, which offer vital watershed protection services. Sea moss also contributes to carbon capture and sequestration (7), though levels are unquantified locally.

- **What contribution is your project making to a higher-level impact on human development and wellbeing (poverty reduction)?**

The project is still in its infant stages however there has been a lot knowledge transfer and capacity building initiatives. The training sessions and workshops are aimed at equipping the farmers and with the skills and knowledge necessary to sustainably cultivate, harvest, and process sea moss. This not only enhances economic opportunities but also strengthens community resilience and self-reliance. (*Section 5 speaks more on poverty reduction*).

#### **4. Project support to the Conventions, Treaties or Agreements**

Acting in line with CBD commitments and Aichi targets, as well as Saint Lucia's 2<sup>nd</sup> revised NBSAP 2018-2025, the following contributing activities are on-going:

- A consultancy which will advise on the causes of biodiversity loss associated with sea moss farming through a rapid assessment of protected areas near pilot sites. The report from this study will also suggest areas suitable for sea moss production to reduce pressure on biodiversity.
- Public outreach through training and workshops have begun educating farmers on the value of biodiversity and how it supports their farming practice and vice versa thus identifying incentives for sustainable farming.

Project pilot sites also overlap with two Ramsar sites, Ma Kote Mangrove (2022) and Savannes Bay Mangrove (2002). Project efforts to reduce threats to these forests, particularly illicit felling of trees, will support Saint Lucia's "wise use of all their wetlands" under RAMSAR.

The project has and will continue to contribute to the following SDGs:

SDG 5 Gender Equality: On-going project activities are aimed at including women in all aspects of the discussion and training. Women leading sea moss cooperatives have been added as project partners and are also represented on the Project Steering Committee.

SDG 12 Responsible Consumption and Production; SDG 14 Life Below Water; SDG 15 Life on Land:

Experimental cultivation techniques for sea moss aim to improve sustainability of sea moss production through natural resource management. Current farming methods utilize trees from coastal and dry forests which are harvested without regulation. As mentioned previously, current farming techniques also utilize PET bottles as floatation devices which increases the incidence of marine pollution. Offering alternatives such as PVC and bamboo decreases threats associated with marine debris on these ecosystems (14.1, 14.2, 15.2).

The project recognizes the importance of sea moss cultivation as part of the blue economy (12.2; 14.7) and thus is actively training and educating farmers on new technology which can help make the industry more sustainable.

These same actions will contribute to the goals of the St. George's Declaration of Principles for Environmental Sustainability in the OECS, which commits Saint Lucia to conserving biodiversity, promoting sustainable management and improving human well-being.

#### **5. Project support for multidimensional poverty reduction**

Although the project is still in its early stages it has created capacity building and skill development opportunities for at least 23% of all sea moss farmers including women, independent farmers, and members of farmers association and farmers with disabilities. Farmers have received training, technical assistance in sustainable cultivation methods, which increases production and reduces the impact on the environment. By enhancing the skill set of farmers, the project not only improves their profitability but also empowers them to start their own ventures, further contributing to poverty reduction.

Although most of the multi-dimensional poverty reduction activities will be realised in years 2 and 3 of the project, the impact is mainly indirect and will be realized overtime.

Notwithstanding, there are a few notable achievements, it is hoped that at the end of the site suitability assessment (activity 1.1), we will see the establishment of more sea moss farms which can create jobs, especially in coastal communities (Praslin and Eau Piquant) where livelihood options may be limited. These jobs can range from cultivating, harvesting, and processing where more individuals can be engaged. More farms will help individuals and families generate income, thereby reducing poverty levels in the community.

Specific aspects of poverty which the project will address are:

- **Lack of infrastructure such as transport which hampers access to markets, hospitals, schools, ports, airports etc:** As highlighted under indicator 3.5 marketing opportunities will be explored domestically and internationally. The project aim is to increase the income potential for those involved in its production chain through collaboration with PSC partners; Export Saint Lucia and Saint Lucia Bureau of Standards. This increased income can contribute to poverty reduction by providing households with more financial stability and resources to meet their basic needs. As it relates to infrastructure, roads and schools, a needs assessment will be carried out, as highlighted in activity 3.3 in the workplan, to determine the needs of the farmers which can be shared with community council representatives and government agencies where necessary.
- **Lack of access to clean water and sanitation** – Under the current sub grant with the SLNT, a needs assessment will be carried out in Eau Piquant and Praslin. Complementing future endeavours of this project, the Government of Saint Lucia and the SLUNCF have previously provided bleaching tables in both pilot sites. This will improve food safety handling and sanitation practices in communities, inhibiting risks associated with the unhygienic practice of drying the product at ground level.
- **Lack of access to services including education, healthcare, finance etc:** As highlighted in indicator 2.1, the Grievance Mechanism, is an outlet where farmers can address issues related to resource access, such as disputes over coastal land rights or unfair allocation of sea moss zones. It is our hope that ensuring equitable access to resources can enhance productivity and income generation opportunities for sea moss farmers. Additionally, this will be highlighted in the needs assessment conducted in proceeding project activities.
- **Poor governance including the lack of community voice in decision making, and a lack of gender equality** – The grievance mechanism which is about 80% complete is being tailored to the needs of sea moss farmers and can contribute significantly to poverty reduction by addressing various challenges they face and empowering them to pursue sustainable and resilient livelihoods.
- **Climate change impacts causing instability:** The impact of climate change can be catastrophic for sea moss farmers. With the introduction of new methods of raft cultivation, farmers can remove their rafts from the sea and anchor them on the shore during the active hurricane season. This will protect the farmers from suffering severe financial losses and major disruptions in production.
- **Loss of ecosystem services causing instability such as water security:** In indicator 1.2, we are promoting sustainable practices in sea moss farming. The project contributes to the conservation of coastal ecosystems, which are often vital sources of livelihood for coastal communities. Preserving these ecosystems ensures the long-term availability of resources and livelihood opportunities, thereby supporting poverty reduction efforts.

## 6. Gender Equality and Social Inclusion (GESI)

Please quantify the proportion of women on the Project Board <sup>1</sup> .	<ol style="list-style-type: none"> <li>Secretary: Cherry Anne Smith (Fauna &amp; Flora)</li> <li>Board Member: Furlisha Francis (Praslin Women in Sea moss)</li> </ol>
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women <sup>2</sup> .	<p><b>Project Partners Led by Women</b></p> <p>Department of Fisheries: S. Mathurin (Permanent Secretary)</p> <p>Department of Fisheries: Sarita William-Peter (Chief Fisheries Officer)</p> <p>SLNT: Jeannine Compton-Antoine (Director Conservation Manager)</p>

GESI Scale	Description	Put X where you think your project is on the scale
<b>Not yet sensitive</b>	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
<b>Sensitive</b>	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups, and the project will not contribute to or create further inequalities.	
<b>Empowering</b>	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	<b>X</b>
<b>Transformative</b>	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

- **How have you taken in to account the GESI context in designing your approach?**

Currently we do not have a gender plan, however the project has planned to make a conscious effort to target 40 – 50% of women in log frame activities highlighted below:

0.1 ≥ 50%- of targeted sea moss farmers (n=≥200, target: 50% women) in Praslin and PSEPA demonstrate increased capacity to undertake sustainable growing techniques, alternative materials, and best environmental practices.

2.1- Stakeholder engagement undertaken with sea moss actors (farmers, processors, traders) (c.500 people, target: 50% women, across 11 coastal communities living in/adjacent to two pilot sites), with at least 70 % of stakeholders indicating acceptance for agreed sea moss management plan by Y3.

<sup>1</sup> A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

<sup>2</sup> Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

2.2- >10 farmers/community representatives (target: 40% women) participate in project steering committee in Y2 and Y3.

3,4, 4 At least 50 producers (target: 50% women) trained and assisted to process and market quality natural products by end of Y2 (with ongoing mentoring and support through Y3).

3,5  $\geq$ 150 famers and processors (target: 50% female) demonstrate an increased knowledge and understanding of sustainable farming methods and the resulting marketing opportunities in Y3.

- **How have you ensured meaningful participation for all engaged in the project?**

We have been engaging with local communities, including women and marginalized groups (farmers with disabilities) and farmers associations from the outset of the project. There has been a series of meetings, consultations, and training workshops to solicit input, gather local knowledge, and understand community needs and priorities related to sea moss and its development. A Project steering Committee has been installed to encourage active participation from diverse stakeholders, including government and non-governmental organization (NGO) officials, community groups, and farmers association.

- **Explain whether and how your project has made it more equitable for women and marginalised groups?**

Women led groups and people with disabilities were taken into consideration in the project design. These groups, particularly women, have been included in project activities to date. We do note however, that current farming techniques tested to date, may not be feasible for these groups as it requires a strong level of swimming skills and or physical strength which may not be plausible for these groups considered.

- **What lessons have you learnt from this?**

To cater to our marginalised groups, we need to explore more feasible and amenable sustainable farming methods to cater to people with disabilities and people who can't swim, since most of the rafts constructed are to be deployed in deep waters.

## 7. Monitoring and Evaluation

***Outcome: The implementation and effective governance of sustainable sea moss farming in two coastal areas provides a much-needed diversified and viable livelihood option and avoids threats to coastal ecosystems and biodiversity.***

Through project activities implemented thus far, board members of sea moss associations have been heavily involved. Three of the known associations operating within pilot sites are members of the project steering committee, which as per its purpose aims to: "...provide oversight, guidance, and decision-making... serves to ensure alignment with organizational objectives, manage risks, resolve issues, and facilitate communication among stakeholders." As highlighted previously in section 2, the Praslin women in sea moss group is a project partner and will ensure project activities are catered to the needs and priorities of women.

As mentioned in section 3.2, the preceding Arcadia Marine project conducted a series of biological surveys and literature reviews on the effects of sea moss and biodiversity. An on-going consultation will also provide the project with a baseline assessment of the state of critical marine habitats within pilot sites. A monitoring program will also be developed toward the end of the consultation to ensure project activities do not threaten coastal ecosystems, and best practices are followed.

Project activities such as SOP training and future collaboration with Export Saint Lucia (PSC member), as noted in section 2, will assist farmers in obtaining the appropriate training and licencing for value-added products and increased export opportunities. This, in combination with the ease of access to benefits for aid provided to members of organized groups, livelihood opportunities will be improved within sea moss households.

- **What are the indicators of achievements (both qualitative and quantitative) and how are you measuring these?**

One major indicator of achievement is **workshop attendance and feedback**. Most of our workshops have repeat attendance from individual sea moss farmers. For example, farmers who attended experimental cultivation methods returned to attended SOP training. Although official feedback surveys were not shared at these events, at the end of each session, participants are asked to provide verbal feedback of the success of these sessions. Majority of the comments received were positive with constructive criticism on suggestions on how to improve future workshops. These comments are recorded in minutes of the meeting as those highlighted in **Annex 6. Annex 10** provides quantitative data on the number of farmers, women, men, farmers associations, and farmers group who attended training sessions.

A quantitative measure of success is **knowledge and capacity development** i.e. public education which in turn influences quantitative change. This will be observed in later phases of the project when alternative methods become more widely adopted by farmers trained through workshops, as well as those taught by trained farmers.

A **socioeconomic survey** conducted during scoping will act as a baseline for the contribution of sea moss to household income and can be compared in the proceeding survey as a measure of success.

### **Monitoring and Evaluation for outputs:**

**Output 1:** Environmental impact will be tracked by monitoring the methods and materials used by sea moss farmers (farms will be surveyed by the Fisheries Department and data will be centralised in an information management system), analysing sea turtle entanglements reports and evaluating sea grass coverage evolution by Y3 in the quadrats set in Y1.

**Output 2:** To measure progress towards more equitable, inclusive governance, the project steering committee will analyse bi-annually its attendance (to ensure gender parity and representative inclusion of communities and stakeholders), as well as memberships evolutions in community-based associations, and will discuss any grievances shared with the Project Coordinator.

**Output 3:** Capacity will be tracked using a combination of pre- and post-training assessments implemented by the project team, Knowledge, Attitude and Perception (KAP) surveys (baseline in Y2, replicated in Y3), while monitoring CVQ training results, and health and safety inspection reports.

**Output 4:** F&F will track the dissemination of best practice guidelines and lessons learned to monitor reach and the extent of peer learning among stakeholders and neighbouring island. The project steering committee will oversee overall progress and review changes in context and underlying assumptions annually, while partners will review results and track progress against indicators.

Findings will also be fed-back to local communities and government stakeholders. Where appropriate, local knowledge and technical FFI input will be used to adapt existing tools to triangulate results and ensure valid attribution of change.

- **Have there been any changes made to the M&E plan over the reporting period?**

Project Steering Committee meetings will now be held quarterly rather than to biannually to address project progress and grievances more effectively.

- **Do partners share the M&E work or is this the role of one organisation? How is information shared amongst partners/stakeholders?**

Socioeconomic baselines will be established in Y1 by F&F to determine farmers/processors/retailers' household income and wellbeing. The impact of livelihoods and/or market access support will be evaluated through another survey in Y3. The Fisheries Department will record practices in sea moss farms, SLNT will monitor ecosystem health (sea grass beds, coastal forest, sea turtles), and F&F will monitor beneficiary/stakeholder participation in the steering committee, workshops, and consultations.

## 8. Lessons learnt

- A comprehensive stakeholder analysis and mapping activity needed from inception is necessary for better planning, implementing and monitoring to identify the key stakeholders, level of interests, influence, their importance, social and economic impacts.
- Previously experimented sea moss rafting techniques exposed several challenges in ease of deployment for transportation, and use of rigid structures causing premature breakage of the system. As a result, for future raft experiments the following lessons learnt will be applied:
  - More malleable or flexible materials such as silicone should be used where joints are necessary.
  - Transportation and ease of deployment should be assessed prior to construction.
  - For larger designs which cannot be easily towed or carried by a single fishing vessel, and for sea moss farming areas with limited land for construction, more collapsible approaches should be considered.
  - If possible, deployments should occur during low tide periods, to aid ease of deployment.
  - Other anchors such as auger anchors should be used for future experiments as they are more secure and take up less space on the seabed.
- Future experimental plots will be deployed elsewhere in the bay to mitigate existing challenges from plot damage with boat traffic.
- Experiment suggestions should be discussed with various farmers beforehand to gain feedback and suggestions for possible challenges they encounter
- Baseline assessment of existing skill sets is necessary for designing training activities for sea moss farmers.
- Duplication of activities by the various implementing agencies with similar project in the same geographic area can lead to stakeholder fatigue, inefficiencies and problematic issues in the project, if efforts to build synergies are not included from the beginning of the project implementation stage; or best from project planning stage.

### What worked well?

- Training sessions were well attended, farmers participation was effective, and farmers looked very enthusiastic for all the training session. Participation of women was well noted and continue to improve at every training session.
- The collaboration among farmers, community groups and association were great.
- The teams/working groups showed enthusiasm in learning the new sustainable sea moss methods.
- Training in food safety was timely and well received by participants.
- The project was able to create a platform for stakeholders to work collaboratively.

### What didn't work well in the past year?

- Poor participation of local media houses and the Government Information Unit, resulting in opportunity lost for project visibility and national broadcast of the sustainable sea moss farming initiative.

### If you had to do it again, what would you do differently?

Invest more time and resources on stakeholder analysis, guided by an expert social scientist, from inception and develop and implement a more robust stakeholder engagement plan.

### What recommendations would you make to others doing similar projects, for example tackling the same issues or working in the same geographical area?

To others doing a similar project we would strongly recommend formulating and utilizing a stakeholder engagement plan, guided by the log frame from project inception. This should be created with the support of a social scientist to establish an appropriate monitoring plan, and aid in fostering communication and coordination among stakeholders.

### **How are you going to build this learning into the project and future plans?**

Lessons learned from this project will be effectively applied to improve future projects. The lessons will be prioritized based on their potential impact and the likelihood of encountering similar situations. Documentation of what went well and what didn't will be recorded. This documentation could include project reports, post-mortem meetings, or informal discussions. Both successes and failures, will be captured along with the reasons behind them.

### **Are you going to change your plan next year as a result of this learning?**

No, the overall plan will not change, but specific activities will be refined, e.g. the next round of sea moss farming technique trials will incorporate Y1 learning.

### **Do you plan to submit a Change Request?**

Following the two change requests submitted in Y1, no further change requests are currently planned at the time of writing. The need for further change requests will be re-evaluated in Q1-Q2 of Y2.

## **9. Actions taken in response to previous reviews (if applicable)**

N/A -

## **10. Risk Management**

- **Have any new risks arisen in the last 12 months that were not previously accounted for?**

- Public safety and concern- location of meetings may vary based on gang related violence incidences as it may influence stakeholder participation. Meeting locations will take these safety concerns into consideration in Y2.
- The sea moss farms are located on the coastlines in isolated areas, for project staff members (particularly women) it may pose a risk to venture into those isolated areas alone to undertake field work. Fieldwork planning in Y2 will ensure that visits to remote areas are conducted safely, avoiding solo visits.
- Some farmers have indicated that the new methods of farming sea moss require them to go into deeper waters. Majority of the women producers are unable to swim and have expressed safety concerns regarding those method. Sea moss farming technique trials in Y2 will take this into account.

- **Has the project made any significant adaptations to the project design this year to address risk?**

Beyond the minor log frame modifications agreed with Darwin through the non-financial change request earlier in Y1, no further significant adaptations to the project design were done this year. However, we have had discussions on the mitigation measures that can be adapted in other to mitigate the risks mentioned above in section 10 and in the risk register.

## **Sustainability and Legacy**

- **What evidence is there for increasing interest and capacity resulting from the project?**

We continue to introduce new sustainable farming methods, there has been training in SOPs with increasing attendance from stakeholders, farmers association and the local community. The Department of Fisheries have shown interest by continuing to collaborate through provision of technical advice and actively engaging in field activities. The Project Steering Committee is also an indication of partners continued interest and capacity building towards the development of the project.

- **Please describe any action you have taken as part of the project's open access plan.**

Early engagement and collaboration with official and unofficial partners working within the same space such as the GEF: Southeast Coast Project and SLUNCF, has created greater opportunities for information sharing.

With the continued support of these agencies, initial discussions on data management through Fauna and Flora's preceding Arcadia Marine project will continue into new developments under this Darwin Initiative. Particularly with the use of the National Environmental Information System to collect data and create a sharable platform for environmental information from various ministries and other private organizations.

Further partner consultation with JICA has allowed for sharing best practices techniques of sustainable sea moss farming methods which will lead to updating the existing handbook for sea moss farming i.e. Nelson (2017).

- **Is the project generating interest from other organisations and institutions?**

Through early collaboration with agencies and groups operating within pilot sites, namely the Saint Lucia National Conservation Fund, JICA, GEF: Southeast Coast Project, Praslin sea moss farmers association, Eau Piquant sea moss farmers association, Praslin community women in sea moss, the project has identified synergistic opportunities and improves visibility of project activities.

- **Are the intended sustainable benefits post-project still valid given the project is now running, or have you, or are you, planning to make changes to what was originally proposed?**

A change request was made during the half year reporting period and thus, no additional changes will be made to the project.

## 10. Darwin Initiative identity

1. **What effort has the project made to publicise the Darwin Initiative, e.g. where did the project use the Darwin Initiative logo and promote funding opportunities or projects?**

The Darwin Initiative logo has been used during inception meeting presentations and invitations. A joint press release on the project was developed by Fauna & Flora and the British High Commission Office in Saint Lucia was not published due to bureaucratic issues in the Ministry of Agriculture. The Project coordinator is currently working with the Fauna and Flora Communication Team on a plan for social media, local media and other medium to raise the profile of the project and share information with the public.

2. **Was the Darwin Initiative funding recognised as a distinct project with a clear identity or did it form part of a larger programme?**

Yes, it was recognised as a distinct project, however the project also supports existing initiatives aimed at improving sustainable sea moss production in saint Lucia.

3. **To what extent is there an understanding of the Darwin Initiative within the host country and who is likely to be familiar with the Darwin Initiative?**

Government Departments (Fisheries), Sea moss farmers association, Bureau of Standards, Export Saint Lucia, all these organisations are aware of the Darwin Initiative and work collaboratively in the implementation of project activities.

### Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	No
Have any concerns been reported in the past 12 months	No

Does your project have a Safeguarding focal point?	Yes [Cherry ██████████ - ██████████ ██████████] An alternative email will be created upon finalization of the grievance mechanism.
Has the focal point attended any formal training in the last 12 months?	Yes [ <i>Fauna and Flora staff members have completed F&amp;F required Safeguarding, Social Conduct and Grievance Mechanism courses</i> ]
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: 60% [three individuals] Planned: % [N/A]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses. N/A	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify: Finalisation of grievance mechanism.	
Please describe any community sensitisation that has taken place over the past 12 months; include topics covered and number of participants.	
Have there been any concerns around Health, Safety and Security of your project over the past year? If yes, please outline how this was resolved.  Some farmers have highlighted concerns referencing deep water growing techniques being explored, as there are increased risks of drowning and threats from larger marine life as well as with less opportunities for surveillance.	

## 11. Project expenditure

**Table 1: Project expenditure during the reporting period (1 April 2023 – 31 March 2024)**

Project spend (indicative since last Annual Report)	2023/24 Grant (£)	2023/24 Total Darwin Costs (£)	Variance %	Comments (please explain significant variances)			
Staff costs (see below)							
Consultancy costs							
Overhead Costs							
Travel and subsistence				Delays to project implementation (see change request for details) resulted in lower travel and subsistence spending than anticipated in Y1. Y1 funds were reallocated within donor cost category limits to maximise spending and delivery.			
Operating Costs							
Capital items (see below)							
Others (see below)							
<b>TOTAL</b>				<b>106,552.60</b>	<b>106,552.61</b>		

**Table 2: Project mobilised or matched funding during the reporting period (1 April 2023 – 31 March 2024)**

	Secured to date	Expected by end of project	Sources
Matched funding leveraged by the partners to deliver the project (£)	N/A		
Total additional finance mobilised for new activities occurring outside of the project, building on evidence, best practices and the project (£)			

**11. Other comments on progress not covered elsewhere**

The project log frame was updated in year 1 (as per approved non-financial change request) to incorporate standard indicators, address feedback from the project approval letter, and to refine certain indicators (see latest log frame in **Annex 2**)

In terms of difficulties encountered by the project, delays in hiring the critical project coordinator role (as detailed in approved financial change request), caused delays to implementation. However, a project coordinator was hired at the end of 2023 which has enabled the implementation of training sessions with farmers, experimental trials and the initiation of the project steering committee.

**12. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes.**

N/A

**Image, Video or Graphic Information:**

File Type (Image / Video / Graphic)	File Name or File Location	Caption including description, country and credit	Social media accounts and websites to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
				Yes / No
				Yes / No
				Yes / No
				Yes / No
				Yes / No

## Annex 1: Report of progress and achievements against log frame for Financial Year 2023-2024

Project summary	Progress and Achievements April 2023 - March 2024	Actions required/planned for next period
<p><b>Impact:</b> Sustainable sea moss farming in south-east Saint Lucia, and ultimately throughout the island, improves community wellbeing and safeguards healthy coastal ecosystems, supporting thriving populations of critically endangered keystone species. (Max 30 words)</p>	<p>The experimental trial plots are aimed at reducing coastal deforestation</p> <p>The trial methods have been well received by farmers and the Eau Piquant Charcoal Producers Group. This group will be making a move from charcoal production to sustainable sea moss production using the newly introduced raft culture instead of the anchored monoline method.</p>	
<p><b>Outcome</b> <i>The implementation and effective governance of sustainable sea moss farming in two coastal areas provides a much-needed diversified and viable livelihood option and avoids threats to coastal ecosystems and biodiversity.</i></p>		
<p>Outcome indicator 0.1                      ≥50% of targeted sea moss farmers (n=≥200) in Praslin and PEPSA demonstrate increased capacity to undertake sustainable growing techniques, alternative materials, and best environmental and sanitation practices in Y3 compared to Y1</p>	<p>Forty-Six (46) farmers will be implementing basic food safety in their operating procedures.</p>	<p>Inspection of processing facilities</p> <p>Develop SOP specifically for sea moss production in Saint Lucia</p>
<p>Outcome indicator 0.2,                      By end Y2, participatory governance mechanisms are established and functioning for two pilot sites, representing 11 communities and an estimated 200 sea moss farming households, and involving local authorities</p>	<p>Support to BIOPAMA project in developing and implementing a management structure for Savannes Bay which will be replicated in other sea moss growing areas such as Praslin-pilot site 2. F&amp;F is aiding with the construction of demarcation buoys to facilitate the implementation of a management structure to govern the activities within the bay.</p>	<p>Construction and deployment of marker buoys for demarcation in one pilot site.</p>
<p>Outcome indicator 0.3                      0.3 ≥50% of targeted sea moss farmers (n=≥200) meet proposed sanitary requirements for food safety by Q3Y3, against baselines established in Y1.</p>	<p>A baseline assessment for sanitation and food safety has not been conducted. However, initial SOP and food safety training conducted to date with 46 farmers has created an avenue for preliminary discussion of attitudes and knowledge.</p>	<p>Any sanitary requirements identified below the threshold from the results of this site suitability report, will be used to inform actions. Thus, in addition to sharing these results of this report with steering committee members, a monitoring protocol will be implemented in pilot sites.</p>
<p>Outcome indicator 0.4                      By Y3, no forest-based materials are extracted from coastal tropical dry forests for use in sea moss farms in PSEPA and Praslin</p>	<p>N/A</p>	<p>Indicator is scheduled to be achieved by end of year 3</p>

Outcome indicator 0.5 In Y3, ≥75% of women and men in participating households in PSEPA and Praslin (n=≥200 households) report significant improvements in one or more dimensions of well-being (e.g., income or personal security, more equitable relationships with other market actors, increased agency, better gender relations)	Preparatory work including stakeholder engagement, workshops, trainings, community meetings, zoning and demarcation are currently ongoing to assist in achieving this indicator.	Indicator is scheduled to be achieved by end of year 3
<b>Output 1 Environmental impact reduction and mitigation measures are implemented as standard and best practice in two of Saint Lucia's core sea moss farming areas (covering c.120 hectares), preserving coastal ecosystems and biodiversity.</b>		
Output indicator 1.1 By Y2, suitable and non-suitable sites for sea moss farming are identified based on environment criteria and in consultation with farmers at two pilot sites in PSEPA and Praslin	Consultant hired to do develop Site suitability assessment tools conduct survey and develop monitoring plan	Assessment tools used to determine new sites for sea moss farming island wide. New suitable sites identified)
<b>Output indicator 1.2,</b> By end Y2, 120 hectares of sea moss farming area across two pilot sites is cultivated using best practice methods to avoid and/or reduce negative environmental impact, including on marine turtles and seagrass beds	Preparatory work including stakeholder engagement, workshops, trainings, community meetings, zoning and demarcation are currently ongoing to assist in achieving this indicator.	Indicator is scheduled to be achieved by end of year 2.
<b>Output indicator 1.4</b> From Q1Y2 onwards, 100% of turtle entanglements in farms are reported to the Fisheries Department and the project steering committee.	On March 6 <sup>th</sup> , 2024, a survey was conducted in Savannes Bay to determine the rate and incidence of turtle entanglement. One incident was recorded about 3 years ago. To date there hasn't been any record of incidence in Savannes Bay.	Stakeholder engagement with Saint Lucia National Trust
<b>Output indicator 1.5</b> By the end of Y3, seagrass coverage is stable and has not decreased in monitoring quadrats established in farming areas in Y1.	N/A	Indicator is scheduled to be achieved by end of year 3.
<b>Output 2. Participatory local governance and management mechanisms and improved national policy frameworks are adopted, supporting the widespread knowledge of and effective enforcement of sea moss farming regulations.</b>		
<b>Output indicator 2.1</b> Stakeholder engagement undertaken with sea moss actors (farmers, processors, traders) (c.500 people, target: 50% women, across 11 coastal communities living in/adjacent to two pilot sites), with at least XX% of stakeholders indicating acceptance for agreed sea moss management plan by Y3.	N/A	Indicator is scheduled to be achieved by end of year 3.

<p><b>Output indicator 2.2.</b> &gt;10 farmers/community representatives (target: 40% women) participate in project steering committee in Y2 and Y3.</p>	<p>Currently a project Steering has been established with three farming groups, six authority agencies.  33 % of board members are women. Please see section 6 above.</p>	<p>Project steering committee meeting are scheduled to take place once every quarter</p>
<p><b>Output indicator 2.3.</b> By Y2, ≥60% (n=&gt;110) sea moss farmers at two pilot sites influence and input into site management through their membership in community-based associations.</p>	<p>N/A</p>	<p>Indicator is scheduled to be achieved in year 2</p>
<p><b>Output indicator 2.4</b> By Y3, proposed sea moss farming policy and regulations are drafted and submitted as an official Cabinet Memo; to amend the existing 194_ Fisheries Act (subject to Parliament approval)</p>	<p>N/A</p>	<p>Indicator is scheduled to be achieved in year 3</p>
<p><b>Output indicator 2.5</b> Evidence-based, nationwide sea moss management strategy and plan for Saint Lucia, informed by partnership with government, farmers, community and technical experts, is finalised by Y3.</p>	<p>N/A</p>	<p>Indicator is scheduled to be achieved in year 3</p>
<p><b>Output 3: Sea moss farmers and their households benefit from increased capacity to implement sustainable sea moss production practices and improved access to market opportunities.</b></p>		
<p><b>Output indicator 3.1</b> Heavy metal contents in sea moss and water quality in pilot sites are assessed in Y2, and sea moss farms are screened for diseases in Y2 and Y3. Results are presented to government and steering committee.</p>	<p>A consultant has been hired to conduct activity 3.2: “Test heavy metal contents and other food safety parameters and survey disease in sea moss (Y1-2).” The results from this assessment will be provided in June and used as the baseline for this assessment  Pilot sites will be tested both locally and internationally to build local capacity for heavy metal testing.</p>	<p>Any sanitary requirements identified below the threshold from the results of this site suitability report, will be used to future inform actions. Thus, in addition to sharing the results of this report with steering committee members, a monitoring protocol will be created and implemented to measure water quality standards.</p>
<p><b>Output Indicator 3.2</b> ≥60% (n=&gt;110) (target: 30% women) of sea moss farmers/processors have registered to the updated Caribbean Vocational Qualification (CVQ) and have passed food safety inspections by Q4Y2.</p>	<p>Under the Sub Grant Agreement between FF and the SLNT signed in March 2024, the Trust will provide support for the update of SLNT CVQ.</p>	
<p><b>Output Indicator 3.3</b> Request to update Geographic Indicator criteria sent in Y3</p>	<p>N/A</p>	<p>Indicator is scheduled to be achieved in year 3</p>

<b>Output Indicator 3.4</b> At least 50 producers (50% women) trained and assisted to process and market quality natural products by end of Y2 (with ongoing mentoring and support through Y3)	N/A	Indicator is scheduled to be achieved in year 2 and year 3
<b>Output Indicator 3.5</b> ≥150 famers and processors (50% female) demonstrate an increased knowledge and understanding of sustainable farming methods and the resulting marketing opportunities	Trainings are ongoing and in the upcoming years the number of participants will increase to achieve 150 participants.	Continued training in processing in years two and three.
<b>Output Indicator 3.6</b> The sale of quality natural sea moss products in Praslin and PSEPA increases by at least 20% by Y3, compared to Y1 baseline	Farmers have begun the prerequisite trainings in food safety and quality. Further trainings in product development, processing, labelling, quality assurance will be done in year 2 and 3.	Indicator is scheduled to be achieved in year 3
<b>Output Indicator 3.7</b> Requirements for exporting sea moss to Canada and the UK are identified by Export Saint Lucia by Y2 and incorporated into training materials and sustainable sea moss farming manual in Y3.	N/A	Indicator is scheduled to be achieved in year 2 and 3.
<b>Output 4: Best practices and lessons learned are shared and promoted at the national level, to influence wider policy and practice in sea moss farming.</b>		
<b>Output Indicator 4.1</b> A manual synthesizing sea moss farming best practice is finalised and disseminated nationally and regionally in Y3.	N/A	Indicator is scheduled to be achieved in year 3
<b>Output Indicator 4.2</b> Presentation on sea moss farming methods and recommendations for management at the national level presented to the Government in Y3 and shared with Caribbean Regional Fisheries Mechanism (CRFM).		Indicator is scheduled to be achieved in year 3
<b>Output Indicator 4.3</b> Sea moss farming manual is shared internally and externally, and one paper is submitted to a peer-reviewed, open-access journal for publication in Y3.	N/A	Indicator is scheduled to be achieved in year 3
<b>Output Indicator 4.4</b> A report updating the UN Food and Agriculture Organisation (FAO) Value Chain Analysis (including on market assessment, inventorying health and sanitary regulations, and market opportunities) is produced and submitted by end Y2.	N/A	Indicator is scheduled to be achieved in year 3

## Annex 2: Project's full current log frame as presented in the application form (unless changes have been agreed)

Project summary	SMART Indicators	Means of verification	Important Assumptions
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<p><b>Impact:</b> Sustainable sea moss farming in south-east Saint Lucia, and ultimately throughout the island, improves community wellbeing and safeguards healthy coastal ecosystems, supporting thriving populations of critically endangered keystone species.</p>			
<p><b>Outcome:</b> The implementation and effective governance of sustainable sea moss farming in two coastal areas provides a much-needed, diversified, and viable livelihood option and avoids threats to coastal ecosystems and biodiversity.</p>	<p>0.4 By Y3, no forest-based materials are extracted from coastal tropical dry forests for use in sea moss farms in PSEPA and Praslin.</p> <p>0.5 In Y3, ≥75% of women and men in participating households in PSEPA and Praslin (n=≥200 households) report significant improvements in one or more dimensions of well-being (e.g., income or personal security, more equitable relationships with other market actors, increased agency, better gender relations)</p>	<p>0.1 Pre-and post-training assessments, farm records</p> <p>0.2 Steering committee and associations meeting agendas, notes, and participants lists</p> <p>0.3 Fisheries Department sea moss farms monitoring log and information management systems, inspection reports from the Department of Environmental Health and Bureau of Standards</p> <p>0.4 Fisheries Department farm monitoring log, inspection of materials used on farms</p> <p>0.5 Participatory Impact Assessment (results disaggregated by sex)</p>	<p>Even as Saint Lucia's economy and employment levels improve following the collapse of tourism during the Covid-19 pandemic, local people remain keen to diversify their livelihoods and avoid sole-source dependence on tourism.</p> <p>In the absence of viable livelihood options, including employment in the tourism industry, local people are more likely to engage in unsustainable livelihood pursuits, including poaching and deforestation.</p> <p>There are no major, adverse policy or land use changes within the project area. The project design accounts for existing public health/Covid-19 policies and guidelines on assembly and travel and assumes no new restrictions are introduced.</p> <p>Severe weather, including hurricanes, do not affect project activities. The project will be planned around seasonal hurricane activity.</p>
<p><b>Output 1</b></p> <p>Environmental impact reduction and mitigation measures are implemented as standard and best practice in two of Saint Lucia's core sea moss farming areas (covering c.120 hectares), preserving coastal ecosystems and biodiversity.</p>	<p>1.1 By Y2, suitable and non suitable sites for sea moss farming are identified based on environment criteria and in consultation with farmers at two pilot sites in PSEPA and Praslin.</p> <p>1.2 By end Y2, 120 hectares of sea moss farming area across two pilot sites are cultivated using best practice methods to avoid and/or reduce negative environmental impact, including on marine turtles and seagrass beds.</p> <p>1.4 From Q1Y2 onwards, 100% of turtle entanglements in farms are reported to</p>	<p>1.1 Fisheries Department maps, report from Site Suitability and Site Carrying Capacity assessments, summary of farmer consultations</p> <p>1.2 Fisheries Department sea moss farm monitoring log and information management system, area observations, reports of turtle entanglements (the latter are often anecdotal only, so not reliable for data analysis), reports of registered farmers using alternatives to wooden sticks and plastic bottles</p>	<p>Farmers understand and espouse the value of using substitutes for wood and plastic bottles in their sea moss farming practices, and substitute materials are accessible and cost-efficient for farmers and do no environmental harm.</p> <p>Data on biodiversity and ecosystem health in project sites from previous initiatives are available and suitable to inform the baseline project data set and underlying drivers of biodiversity loss.</p>

	<p>the Fisheries Department and the project steering committee.</p> <p>1.5 By the end of Y3, seagrass coverage is stable and has not decreased in monitoring quadrats established in farming areas in Y1.</p>	<p>1.3 Fisheries Department farm monitoring log, pictures</p> <p>1.4 Fisheries Department farm monitoring log, project steering committee minutes</p> <p>1.5 Fisheries Department monitoring log, information management system</p>	
<p><b>Output 2</b></p> <p>Participatory local governance and management mechanisms and improved national policy frameworks are adopted, supporting the widespread knowledge of, and effective enforcement of, sea moss farming regulations.</p>	<p>2.1 Stakeholder engagement undertaken with sea moss actors (farmers, processors, traders) (c.500 people, target: 50% women, across 11 coastal communities living in/adjacent to two pilot sites), with at least 70% of stakeholders indicating acceptance for agreed sea moss management plan by Y3. [DI-B06 Number of Indigenous Peoples and Local Communities (people) with strengthened (recognised/clarified) tenure and/or rights]</p> <p>2.2 &gt;10 farmers/community representatives (target: 40% women) participate in project steering committee in Y2 and Y3. [DI-B05]</p> <p>2.3 By Y2, ≥60% (n=&gt;110) sea moss farmers at two pilot sites influence and input into site management through their membership in community-based associations. [DI-A04]</p> <p>2.4 By Y3, proposed sea moss farming policy and regulations are drafted and submitted as an official Cabinet Memo; to amend the existing 194_ Fisheries Act (subject to Parliament approval).</p> <p>2.5 Evidence-based, nationwide sea moss management strategy and plan for Saint Lucia, informed by partnership with government, farmers, community and technical experts, is finalised by Y3.</p>	<p>2.1 Meeting notes, feedback and follow-up steps detailed in grievance log, household surveys including a component on people's attitudes to management plans</p> <p>2.2 Participant lists from Steering Committee meetings, meeting notes</p> <p>2.3 Lists of associations' members, statutes of project site management entities</p> <p>2.4 List of regulations, Cabinet Conclusion</p> <p>2.5 Management Strategy and Plan submitted for approval to government entities</p>	<p>Increased knowledge leads to improvements in attitudes and behaviour.</p> <p>The national government continues to support sea moss farming as a viable, sustainable livelihoods opportunity for local people and as an opportunity to diversify the economy away from dependence on the tourism industry.</p>

<p><b>Output 3</b></p> <p>Sea moss farmers and their households benefit from increased capacity to implement sustainable sea moss production practices and improved access to market opportunities.</p>	<p>3.1 Heavy metal contents in sea moss and water quality in pilot sites are assessed in Y2, and sea moss farms are screened for diseases in Y2 and Y3. Results are presented to government and steering committee.</p> <p>3.2 ≥60% (n=&gt;110) (target: 30% women) of sea moss farmers/processors have registered to the updated Caribbean Vocational Qualification (CVQ) and have passed food safety inspections by Q4Y2.</p> <p>3.3 Request to update Geographic Indicator criteria sent in Y3.</p> <p>3.4 At least 50 producers (target: 50% women) trained and assisted to process and market quality natural products by end of Y2 (with ongoing mentoring and support through Y3).</p> <p>3.5 ≥150 famers and processors (target: 50% female) demonstrate an increased knowledge and understanding of sustainable farming methods and the resulting marketing opportunities in Y3.</p> <p>3.6 The sale of quality natural sea moss products in Praslin and PSEPA increases by at least 20% by Y3, compared to Y1 baseline.</p> <p>3.7 Requirements for exporting sea moss to Canada and the UK are identified by Export Saint Lucia by Y2, and incorporated into training materials and sustainable sea moss farming manual in Y3.</p>	<p>3.1 Lab reports, minutes from steering committee, report to stakeholder groups</p> <p>3.2 Evidence of farmers registration to CVQ, certificates issued from the Department of Environmental Health</p> <p>3.3 Book of specifications, records of emails sent to sea moss selling companies, meeting minutes, Registrar entry (Geographical Indications Act, 2000, Chapter 13.14)</p> <p>3.4 Sex-disaggregated participant lists, photographs from training programme</p> <p>3.5 Training self-assessments, capacity scores evaluated (adapted from Appleton, 2016) in Y1 and Y3</p> <p>3.6 Farm records, sales records, survey results</p> <p>3.7 List of requirements established for each country, mails with Government Trade Officials and private sector operators, training materials</p>	<p>Climatic events, including hurricanes, do not jeopardise the viability of sea moss farms.</p> <p>Current distributor, retailer, and consumer interest in good quality local products and services, both domestically and internationally, is maintained and increased.</p> <p>Sargassum landings do not increase to the point where they threaten the viability of sea moss farming in Saint Lucia</p>
<p><b>Output 4</b></p> <p>Best practices and lessons learned are shared and promoted at national and regional levels to influence wider policy and practice in sea moss farming.</p>	<p>4.1 A manual synthesizing sea moss farming best practice is finalised and disseminated nationally and regionally in Y3. [DI-C01]</p>	<p>4.1 Sea moss farming and processing best practices manual</p> <p>4.2 Digital presentation, minutes of meeting, correspondence history with CRFM</p>	<p>Decision makers, partners and stakeholders are receptive to the learning generated by the project.</p>

	<p>4.2 Presentation on sea moss farming methods and recommendations for management at the national level presented to the Government in Y3 and shared with Caribbean Regional Fisheries Mechanism (CRFM).</p> <p>4.3 Sea moss farming manual is shared internally and externally, and one paper is submitted to a peer-reviewed, open-access journal for publication in Y3.</p> <p>4.4 A report updating the UN Food and Agriculture Organisation (FAO) Value Chain Analysis (including on market assessment, inventorying health and sanitary regulations, and market opportunities) is produced and submitted by end Y2.</p>	<p>4.3 Distribution records of project reports and case studies at learning events and online, peer-reviewed paper, Google analytics data on downloads</p> <p>4.4 Report</p>	<p>Problems and solutions at the project sites are applicable to other areas of Saint Lucia.</p>
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**Activities**

- 1.1 Identify drivers of biodiversity loss through desk review, community consultations, interviews, and participatory threat analysis; collect and compile existing baseline biodiversity data; identify gaps (Y1).
- 1.2 Elaborate and implement biodiversity monitoring plan (water quality, seagrass beds, coastal dry forest, turtle entanglement, other ecosystem health indicators) and information management system (Y1-3).
- 1.3 Develop and apply the Site Suitability Assessment tool and Site Carrying Capacity tool in the two project sites to support identification of viable farm sites (Y1-2).
- 1.4 Conduct desktop review and partner consultations to identify locally appropriate sustainable farming techniques/best practice (Y1-2).
- 1.5 Trial identified sustainable farming techniques, led by Fisheries Department with lead farmers
- 1.6 Evaluate trial results and impact on biodiversity; disseminate and discuss results with farmers, farmers associations, partners, and other key stakeholders (Y2-3).
- 1.7 Based on trial outputs, train other PSEPA and Praslin farmers on best practices, including reporting turtle entanglements, and sustainable farming techniques (Y2-3).
  
- 2.1 Develop and implement stakeholder engagement plan and grievance mechanisms for PSEPA and Praslin sea moss associations (Y1).
- 2.2 Establish standard operating procedures (SOPs) for farmers associations and designate farmer/community representatives (Y1).
- 2.3 Build individual and organisational capacity of farmers associations and representatives, including for effective participation in project steering committee (Y1-2-3).
- 2.4 Establish Praslin community working group (including farmers association representative) to discuss management of the coastal zone and marine management area and support demarcation (Y1-2).
- 2.5 Draft sea moss farming policy and regulations with stakeholders and submit as an official Cabinet Memo (to amend Fisheries Act) (Y2-3).
- 2.6 Create and activate the Fisheries Department farms monitoring log and sea moss management information system (Y1-2-3).
- 2.7 Develop sea moss management strategy and plan with stakeholders (Y2-3).
  
- 3.1 Develop and implement Knowledge/Attitudes/Practices (KAP) surveys and hold workshops to carry out a participatory impact assessment (Y1).
- 3.2 Test heavy metal contents and other food safety parameters and survey disease in sea moss (Y1-2).

- 3.3 Carry out Training Needs Assessment with farmers, processors, SLNT and Fisheries Department (Y1).
  - 3.4 Update the SLNT's CVQ and support/encourage farmers to register (Y1-2).
  - 3.5 Organise training using knowledge/resources from U.S. Department of Agriculture, CRFM, Saint Lucia Bureau of Standards and Environmental Health Department, in compliance with import/export and domestic requirements (Y1-2-3).
  - 3.6 Train farmers and processors in best environmental and sanitation practices, and production and marketing of high-quality natural products for local and export markets (Y1-2-3).
  - 3.7 Collaborate with Export Saint Lucia and Department of Commerce and Trade to prepare environmental/sanitary requirements and facilitate application for Geographic Indicator (Y2-3).
  - 3.8 Launch Department of Environmental Health Unit responsible for environmental health, food safety, preharvest, harvest and postharvest monitoring of farms and processing facilities (Y2-3).
  - 3.9 Assess new potential export markets (Y1-2-3).
  - 3.10 Carry out second training needs assessment (Y3).
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- 4.1 Compile results and learning to date in Manual (including best practices and most efficient alternatives to plastic, wooden sticks, loose ropes) (Y2-3).
  - 4.2 Share Manual nationally and internationally, and draft and submit paper to scientific journal (Y3).
  - 4.3 Present recommendations for management to the government and share outputs with CRFM (Y3).
  - 4.4 Write report to update the UN FAO Value Chain Analysis (Y2).

## Annex 3: Standard Indicators

**Table 1 Project Standard Indicators**

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A04:	Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training. (Ref indicators 0.1 & 2.3)	People	Trained sea moss farmers including 1 with disability.	46			46	≥200
DI-A04:	Number of people reporting that they are applying new capabilities (skills and knowledge) 6 (or more) months after training. (Ref indicator 3.4)	Producers	Sea moss producers	46			46	50
DI-B05	Number of people with increased participation in local communities / local management organisations (i.e., participation in Governance/citizen engagement). (Ref indicator 0.2)	People	Sea moss farming households	41			41	200
DI-B06	Number of Indigenous Peoples and Local Communities (people) with strengthened (recognised/clarified) tenure and/or rights] (Ref indicator 2.1)	People	Farmers, processors, traders	46			46	500
DI-A01	Number of people from key national and local stakeholders completing structured and relevant training. (Ref indicator 3.4)	People	Producers (50% Women/Men)	46			46	50
DI-C01	Number of best practice guides and knowledge products published and endorsed (Ref indicator 4.1 and 4.2)	Number	Product typology – published presentations and recommendations **	0			0	2
DI-B09	Number of individuals / households reporting a decrease in unsustainable practices as a result of project activities (Ref indicator 0.3)	People	Farmers meeting environmental and Sanitary Requirements*	0			0	100

**Table 2 Publications**

<b>Title</b>	<b>Type</b> (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	<b>Detail</b> (authors, year)	<b>Gender of Lead Author</b>	<b>Nationality of Lead Author</b>	<b>Publishers</b> (name, city)	<b>Available from</b> (e.g. weblink or publisher if not available online)

*There are no publications for this reporting period 2023 - 2024*

## Arcadia Marine Outputs Summary

### Checklist for Submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the <b>correct template</b> (checking fund, type of report (i.e. Annual or Final), and year) and <b>deleted the blue guidance text</b> before submission?	Yes
<b>Is the report less than 10MB?</b> If so, please email to <a href="mailto:BCF-Reports@niras.com">BCF-Reports@niras.com</a> putting the project number in the Subject line.	
<b>Is your report more than 10MB?</b> If so, please discuss with <a href="mailto:BCF-Reports@niras.com">BCF-Reports@niras.com</a> about the best way to deliver the report, putting the project number in the Subject line.	
<b>Have you included means of verification?</b> You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	Yes
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see Section 16)?	Yes
Have you involved your partners in preparation of the report and named the main contributors	Yes
Have you completed the Project Expenditure table fully?	Yes
Do not include claim forms or other communications with this report.	