



Project Implementation Report
(01 July 2021 – 30 June 2022)

Project Title:	Strategic Platform to promote sustainable energy technology innovation, industrial development and entrepreneurship in Barbados
GEF ID:	9648
UNIDO ID:	150123
GEF Replenishment Cycle:	GEF-6
Country(ies):	Barbados
Region:	CARICOM
GEF Focal Area:	Climate Change
Integrated Approach Pilot (IAP) Programs¹:	Not applicable
Stand-alone / Child Project:	Not applicable
Implementing Department/Division:	EAE/ENE/ESI
Co-Implementing Agency:	Not applicable
Executing Agency(ies):	MIBI (Ministry of International Business & Industry), BIDC (Export Barbados, former Barbados Investment and Development Corporation) and CCREEE (Caribbean Centre for Renewable Energy and Energy Efficiency) Other project partners: MoEWR (Ministry of Energy and Water Resources), MoENB (Ministry of Environment and National Beautification), UWI (University West of Indies) and BCCI (Barbados Chamber of Commerce and Industry)
Project Type:	Medium-Sized Project (MSP)
Project Duration:	48 months
Extension(s):	Project was extended to 5 June 2023.
GEF Project Financing:	US\$ 1,776,484
Agency Fee:	US\$ 168,766
Co-financing Amount:	US\$ 12,910,000
Date of CEO Endorsement/Approval:	04-10-2018
UNIDO Approval Date:	04-25-2018
Actual Implementation Start:	06-05-2018
Cumulative disbursement as of 30 June 2022:	1,326,798

¹ Only for GEF-6 projects, if applicable

Mid-term Review (MTR) Date:	01-08-2022
Original Project Completion Date:	06-05-2022
Project Completion Date as reported in FY21:	06-05-2022 (due to COVID-19 delays, a one-year extension was requested to 06-05-2023)
Current SAP Completion Date:	06-05-2023
Expected Project Completion Date:	06-05-2023
Expected Terminal Evaluation (TE) Date:	Q1-2023
Expected Financial Closure Date:	06-05-2024
UNIDO Project Manager²:	Martin LUGMAYR

I. Brief description of the project and status overview

Project Objective
<p>The Ministry of International Business and Industry (MIBI), the United Nations Industrial Development Organization (UNIDO), the Barbados Investment & Development Corporation (BIDC) and the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE) are jointly implementing the Global Environment Facility (GEF) funded project “Strategic platform to promote sustainable energy technology innovation, industrial development and entrepreneurship in Barbados”.</p> <p>The project contributes to the implementation of the National Strategic Plan 2005-2025, which aims at making Barbados a “green circular economy” and the “most environmentally advanced green country in Latin America and the Caribbean”. The realisation of this vision depends on a rapid transformation of the energy system from fossil fuels to renewable energy and energy efficiency. The development of a “clean-tech market” requires an equilibrium between demand for and quality supply of renewable energy and energy efficiency products and services. Most of the current public and international support is focused on creating demand through enabling policies, incentives, and concessional finance. However, there is only limited support for the creation of an enabling environment for green businesses and entrepreneurs. Therefore, the GEF Project focuses particularly on the strengthening of the supplier-side and the development of respective value chains and business models.</p> <p>In business-as-usual scenarios, Barbadian clean-tech businesses and start-ups will continue to face barriers related to policy and regulatory frameworks, knowledge, capacity, access to R&D, quality infrastructure and finance. Moreover, there exists only very limited coordination and cooperation within the sector. Therefore, the GEF project will strengthen private sector capacities in sustainable energy technology areas with high GHG emission, market, and value creation potential. It will contribute to make the clean-tech industry an important value-creating pillar of the industrialisation and modernisation aspirations of the Government. Particularly, the project will:</p> <ul style="list-style-type: none"> • establish a public-private platform for regular policy dialogue to promote coherent demand and supplier oriented cross-sectoral policies, regulations and incentives; • establish the BLOOM Clean Tech Cluster, a physical sustainable energy and climate hub, which provides businesses with communication and networking space, start-up support (e.g. co-working and maker space, incubation services, common marketing/branding), as well as capacity building; • strengthen the cluster members by establishing a funding window which provides grants and concessional loans for the commercialization innovative business ideas and industrial up-grading; • promote networking and joint ventures between the cluster members and entrepreneurs, investors, venture capitalists, financiers in the Caribbean, other SIDS, internationally (incl. the diaspora);

² Person responsible for report content

- contribute to the creation of qualification and certification frameworks for personal, equipment and services and provide targeted training to current and future members of the cluster;
- replicate the BLOOM cluster model in other countries.

In this regard, the core indicators of the project are as follows:

Project Core Indicators		Expected at Endorsement
From Outcome 1.1	% annual demand increase for SEC services and technologies in key economic sectors (e.g. generation and distribution of power and energy services, construction, fisheries and agro- processing, tourism, transport, waste management, as well as water/desalination)	5% annual demand increase for SEC services and technologies in key economic sectors (e.g. generation and distribution of power and energy services, construction, fisheries and agro-processing, tourism, transport, waste management, as well as water/desalination)
From Outcome 1.1	Satisfaction of the SECs industry with the adapted policy, regulatory and incentive framework after 5 years	Satisfaction of the SECs industry with the adapted policy, regulatory and incentive framework after 5 years
From Outcome 2.1	% increase of annual investments in sustainable energy and climate technology businesses by project end	5% increase of annual investments in sustainable energy and climate technology businesses by project end
From Outcome 3.1	Reported accelerated implementation of SE support programs through improved private sector capacities after five (5) years	Reported accelerated implementation of SE support programs through improved private sector capacities after five (5) years /
From Outcome 3.1	Annual % increase in the use of domestic contractors, services and content throughout the value chain of SE investments	Annual 3% increase in the use of domestic contractors, services and content throughout the value chain of SE investments /
From Outcome 3.1	Number of SE patents submitted for registration after five (5) years	At least 3 SE patents submitted after five (5) years /

Baseline

Despite promising and pioneering developments, the sustainable energy industry in Barbados has still not reached the required economies of scale and is facing various barriers for further uptake. Barbados has a small sustainable energy manufacturing and servicing industry, which comprises mainly SMEs in the areas of solar-thermal (SWH), PV, LED lighting and electric vehicles. The undertaken Sustainable Energy Industry Market Assessment estimates the current employment in the sustainable energy industry at about 200 full time equivalents (FTE).

Most of the domestic industrial activities are limited to services (e.g. installation, design) and only a few assembling/manufacturing businesses are ongoing. In some traditional sectors, the industry seems to have lost its initial innovation capacity (e.g. solar thermal). There is a lack of capacities in some promising growth areas (e.g. energy efficient and climate (hurricane) resilient buildings and appliances, solar-thermal cooling). The small market, high cost of labour and shipping costs (40% higher than in Trinidad and Tabago) remain a limiting factor.

In the Business as Usual (BAU) scenario, the uptake of sustainable energy markets in Barbados will continue

to be hindered by the weak innovation and productive capacity of the local sustainable energy industry. Under this scenario, the attainment of the set sustainable energy, climate and green economy objectives would remain very uncertain. This would jeopardize the vision of the Government to transform into a green circular economy. The local value and job creation effects along the value chain of sustainable energy investments would remain limited. Equipment and services would continue to be imported. In the best scenario, national energy policy 2030 will open significant market opportunities for the local supplier and project developers. Barbados wants to be the first carbon-free small island economy by 2030 and it has a plan to increase 600 MW renewable energy capacity by 2030. New energy policy will open many business opportunities for Solar PV, bioenergy and wind energy project developers and IPPs.

Please refer to the explanatory note at the end of the document and select corresponding ratings for the current reporting period, i.e. FY22. Please also provide a short justification for the selected ratings for FY22.

In view of the GEF Secretariat's intent to start following the ability of projects to adopt the concept of adaptive management³, Agencies are expected to closely monitor changes that occur from year to year and demonstrate that they are not simply implementing plans but modifying them in response to developments and circumstances or understanding. In order to facilitate with this assessment, please introduce the ratings as reported in the previous reporting cycle, i.e. FY21, in the last column.

Overall Ratings ⁴	FY22	FY21
Global Environmental Objectives (GEOs)/ Development Objectives (DOs) Rating	Highly Satisfactory (HS)	Highly Satisfactory (HS)
<p>The project started to show major progress in the second half of 2021 once the government commenced the reduction of COVID restrictions. The Bloom continues to be a priority initiative to address the Barbadian crisis and to enable economy diversification, environmental protection and climate action simultaneously.</p>		
Implementation Progress (IP) Rating	Highly Satisfactory (HS)	Moderately Satisfactory (MS)
<p>The project has achieved major progress in 2021/22 across all outcomes and outputs. The BLOOM Clean Tech Cluster is fully operational and can rely on a growing membership of clean tech companies and start-ups. The GEF project counts on a Clean Tech Platform concept for further support to clean tech industry, this has been outlined based on a joint vision through extensive consultations among the public and private sector, academia, NGOs, and other key actors. At the moment, the Cleantech Incubator is established with 11 incubatees and is receiving full support from BIDD. 10 business models and 9 business plans were completed in cooperation with Bloom Cleantech Cluster members. Due to the downturn of the tourism sector during the COVID pandemic, the Government puts high priority on economic diversification towards new emerging sectors. During this process and the public restructuring, the BLOOM Cluster became a high priority of BIDD (Export Barbados now).</p> <p>The Bloom has made available key policy and practical elements for the clean tech sector: the Barbados Clean Tech Policy Readiness Assessment accompanied by 30 proposals to incentivize the participation of local industries in the clean tech manufacturing and servicing value chains; the Barbados Clean Tech Quality Infrastructure (QI) Assessment to offer solutions to the constraints faced by quality and infrastructure support service; and, the Barbados Clean Tech Tracking Framework to regularly evaluate the industry conditions and</p>		

³ Adaptive management in the context of an intentional approach to decision-making and adjustments in response to new available information, evidence gathered from monitoring, evaluation or research, and experience acquired from implementation, to ensure that the goals of the activity are being reached efficiently

⁴ Please refer to the explanatory note at the end of the document and assure that the indicated ratings correspond to the narrative of the report

progress of the country at the clean tech level. Apart from that, several partnerships have been reinforced/established to allow the cluster to offer advanced trainings, developing project concepts for funds raising, among others. The cluster is setting up the foundations for entrepreneurship and industrial development in the country as planned in the project document.

Between now and 2023, UNIDO will handover the cluster management fully to BIDC. The international cluster manager will provide capacity building and peer-to-peer learning support to the local team. UNIDO will establish a GEF funding mechanism, which will ensure the sustainability of the cluster beyond the project duration.

UNIDO is ready to replicate the BLOOM model with GEF support in other lower income countries, including least developed countries (LDCs) and SIDS. Under the global platform of the Global Network of Regional Sustainable Energy Centres (GN-SEC) program, UNIDO has launched the Regional BLOOM Cluster Program, which will replicate the BLOOM approach particularly in LDCs and SIDS. Further information is available here: <https://www.gn-sec.net/content/bloom-regional-program>.

Overall Risk Rating	Moderate Risk (M)	Moderate Risk (M)
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There are no changes in risk rating. For instance, the country has started to recover from COVID 19 crisis although the Government remains with fiscal discipline for the sustainability of its debt over the medium term. The current rise of fossil fuel prices has reamphaised the need to swith to sustainable energy and circular economy practices. However, so far, the financial sustainability of the BLOOM cluster continues to be a moderate risk.

II. Targeted results and progress to-date

Please describe the progress made in achieving the outputs against key performance indicator's targets in the project's **M&E Plan/Log-Frame at the time of CEO Endorsement/Approval**. Please expand the table as needed.

Progress to-date:

Project Strategy	KPIs/Indicators	Indicators tracking	Baseline	Target	Progress to-date (FY 2020-21)
<p>Project Objective</p> <p>Enhanced GHG emission reduction and domestic value creation through the strengthening of the sustainable energy and climate technology manufacturing and servicing industry in Barbados</p>	<p>Strengthened capacities of the SEC industry lead to direct GHG (in tons of CO₂e) emission reduction over the project duration of 4 years</p> <p>Indirect GHG emission reduction over a period of 20 years (% contribution of the project to the advanced NDC scenario)</p> <p>% annual increase of the turn-over of the SEC technology industry in Barbados (e.g. through increased sales, contracts) over a period of</p>		<p>In the NDC BAU scenario, GHG emissions will reach approximately 2,400 Mt CO₂ eq. by 2026. In the advanced, with intervention scenario, GHG emissions are estimated at 1,450 Mt CO₂ eq. by 2026.</p> <p>Indicator for the current turn-over will be confirmed during the inception meeting</p> <p>200 jobs - full time equivalents (FTE) - currently in the SE sector;</p>	<p>Direct GHG emission reduction of 82,000 tons over 4 (four) years in Barbados</p> <p>Indirect GHG emission reduction of 3.2 million tons of CO₂e over the next 20 years (20% contribution of the project to the advanced NDC scenario)</p> <p>5% annual increase of the turn-over of the SEC technology industry in Barbados (e.g. through increased sales, contracts) over a period of five (5) years</p> <p>200 additional primary and secondary jobs (full time equivalents (FTE) in the SE industry created over a period of five (5) years (overall 400 jobs (FTE) in the sector after five years) (at least 40% occupied by women is envisaged)</p>	<p>It is still too early to report on the higher level impacts and indicators in detail.</p> <p>Generally, already started to generate impacts in terms of GHG emission reduction, turn-over and job creation. The BLOOM Clean Tech Cluster is operating from BIDD facilities (national counterpart) and 11 companies finalised the incubation program. They are strengthening their business plans while business models are available. Furthermore, the GEF project has received further acknowledgement by the Government, which identified the clean tech sector as an important pillar of its COVID-19 recovery and economic diversification strategy.</p> <p>There has been generated 21 new jobs by the start ups and the cluster, and they are working with 88 stakeholders from public, private, and international organizations, including private investors.</p> <p>For the operationalization of the Bloom Cluster, the Clean Tech Industry Platform was defined under consultative process with governmental and sectoral representatives of the country. Furthermore, the Barbados Clean Tech Industry Report and Tracking Framework and the Clean Tech Quality Infrastructure Framework are under development (draft versions available). Both key policy documents will facilitate the creation of a national clean tech vision and</p>

	<p>five (5) years</p> <p>Number of additional primary and secondary jobs (full time equivalents (FTE) in the SE industry created over a period of five (5) years (overall 400 jobs (FTE) in the sector after five years) (at least % occupied by women is envisaged)</p>	<p>Jobs generated by the startups/cluster members: 21 (including founders)</p> <ul style="list-style-type: none"> - GoodRidgePower: 3 - ProSolar 246: 2 - BIMEV: 2 - SJPI e-fishing vessel project: 2 - EcoMycö: 1 - Green Collective: 4 - Red Diamond: 3 - HGFC: 1 - OnSolar: 1 - CEMBI: 2 			<p>establish recommendations on addressing barriers for accessing quality infrastructure and services within the industry, respectively. There were conducted dialogues and workshops to build a clean tech platform through a country vision based on local needs definition and market competitiveness.</p> <p>Currently, UNIDO is preparing the full handover of the BLOOM Cluster management to BIDC.</p> <p>Further details are shown below in the progress description of project components.</p>
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Project Component 1 – Policy and regulatory framework

<p>Outcome 1.1</p> <p>Enhanced market opportunities for SEC businesses through a coherent policy, regulatory and incentive framework and improved public-private coordination</p>	<p>% annual demand increase for SEC services and technologies in key economic sectors (e.g. generation and distribution of power and energy services, construction, fisheries and agro-processing, tourism, transport, waste management, as well as water/desalination)</p> <p>Satisfaction of the SECs industry with the adapted policy, regulatory</p>		<p>Stagnating demand for SECs due to policy and regulatory issues (e.g. solar-thermal, LED lighting, EE in buildings and appliances)</p> <p>Low satisfaction of the private sector with the current policy, regulatory and incentive framework</p>	<p>10% annual demand increase for SEC services and technologies in key economic sectors (e.g. generation and distribution of power and energy services, construction, fisheries and agro-processing, tourism, transport, waste management, as well as water/desalination) over 5 years. Satisfaction of the SECs industry with the adapted policy, regulatory and incentive framework after 5 years</p>	<p>For operationalization of the Bloom Cluster, a conceptualization of the Clean Tech Industry Platform is available with the objective to present a potential platform to address the challenges faced by stakeholders, like weak stakeholder relationships and unsustainable communication as well as lack of trust. The platform counts with a strategy, structure, requirements in terms of administration, contributions and responsibilities of stakeholders and human capacities, and functionality. In this regard, three events termed dialogues were developed focusing on Circular Economy, Emerging Technologies, and Enabling Technologies.</p> <p>The Barbados Clean Tech Industry Report and Tracking Framework is under development (available a draft version), which aims at creating a national clean vision statement. Similarly, there is available a draft version of the Clean Tech Quality Infrastructure Framework. Its main objective is to derive practical recommendations on how to improve the current framework, eliminate barriers and access quality infrastructure services as well as explore the potential role of BLOOM regarding standards development,</p>
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	and incentive framework after 5 years				<p>quality infrastructure assurance and enforcement.</p> <p>Furthermore, there is an agreement to establish the platform as part of the high-level dialogue platform and the cross-sectoral coordination mechanism of the Partnership for Action on Green Economy (PAGE), reached between the main national and international stakeholders (e.g. UN Agencies).</p> <p>In addition, the BLOOM Cluster Business Plan 2020-2024 was developed. It includes the mission, vision, objectives and key milestones of the cluster.</p> <p>Furthermore, 88 stakeholders are working with the Bloom Cluster. Among them are the following investors: Williams Caribbean Capital, Private business angels, Diproduca Inc, SAGANA, Circulate Capital, and banking facilities: RBC and Republic Bank</p>
<p>Output 1.1.1</p> <p>A dialogue platform to promote sustainable energy and climate innovation, entrepreneurship and industrial development is fully operational</p>	<p>Public-private dialogue platform is operational</p> <p>Number of private and public platform members (at least % female)</p> <p>Number of meetings and consultations to discuss policy and legal key issues</p>	<p>Phase of identification: Meetings with more than 50 public-private sector stakeholders completed in 2020.</p> <p>Three Public-Private Cleantech dialogues were organized in 2021 in cooperation with key stakeholders. More than 60 experts participated in the dialogues. On average, women were represented in 49% as attendees, and in 41% as speakers.</p> <p>Dialogue 1. Circular Economy. Dialogue 2. Emerging Technologies. Dialogue 3. Enabling Technologies and access to cheap RE as a</p>	<p>The strengthening of public-private dialogue, the creation of an enabling policy and regulatory framework and the enhancement of quality infrastructure for clean-tech products and services were identified as major barriers for the further uptake of market demand and the expansion of local clean-tech manufacturing and servicing. There is a weak coordination and communication on SE industry issues: between Ministries, between businesses, and between public and private sector.</p>	<p>Platform is operational. At least 50 platform members (it is envisaged that 40% are represented by women). 20 meetings and consultations to discuss policy and legal key issues organized</p>	<p>To fully operationalise the platform, there was contracted Atom Solutions to develop the “clean-tech readiness and quality infrastructure assessments and policy dialogues in Barbados”. A conceptualization of the Clean Tech Industry Platform is available with the objective to present a potential platform to address the challenges faced by stakeholders, like weak stakeholder relationships and unsustainable communication as well as lack of trust. The objectives of the platform are to:</p> <ul style="list-style-type: none"> • Improve the level of communication and collaboration between stakeholders • Provide more networking opportunities to promote business • Support start-up in the industry • Encourage Joint marketing and branding • Build greater capacity in key areas • Expand research and development in CleanTech • Easily sharing information relevant to stakeholders • Promote strong cooperation between applied science institutions & private sector • Foster initiatives to target high GHG emission areas

key to energy security. Speakers were coming from organizations as IDB, WTOITC, EU, BCCI, BNOC, Fair Trading Commission, UWI, CARICOM.

- Explore value creation potential across productive sectors

The platform counts with a strategy, structure, requirements in terms of administration, contributions and responsibilities of stakeholders and human capacities, and functionality. BLOOM is best positioned to play a centralised role on the platform. For outlining this, surveys and a validation meeting (on October 31th 2021) were held.

In the validation workshop, only here, there were 33 participants on a Zoom call. They included private sector companies, Government officers involved in Energy, Environment and CleanTech, and NGOs interested in CleanTech and the Green Economy, among others.

Consequently to the CleanTech Platform, three dialogues were developed, focusing on: *Circular Economy, Emerging Technologies, and Enabling Technologies*. Each dialogue comprised five to six sessions and were designed to host local, regional, and international speakers. Sessions were constructed to last 30 minutes each, with 15 minutes for presentation and 15 minutes for discussion. A few sessions were conducted using a discussion format only and all sessions sought to cover the legal and regulatory framework, policies and incentives, development experiences, customer benefits, commercialization, and networking opportunities.

Attendees included over 60 participants from academia, Government ministries and agencies, regulatory and standards institutions, funders, Renewable Energy companies, ICT companies, professional and business associations. The dialogues included speakers from the Inter-American Development Bank, International Trade Centre, European Union, University of the West Indies (UWI), CARICOM, Caribbean Export Development Agency, Government Ministries, Barbados National Oil Company, Barbados Chamber of Commerce,

Barbados Fair Trading Commission, and entrepreneurs.

This *first dialogue* “Circular Economy” was instrumental in alerting participants to the realities of the marketplace. Discussions revealed that the CleanTech industry needed guiding policies and that new product development needed to lean on stakeholder input to move forward sustainably. The connectivity between stakeholders needs to be strengthened and the COVID-19 pandemic has managed to present opportunities which require clear definition for potential entrepreneurial endeavours. 60% women participated as speakers. 22 participants, 63% of womre represented

This *second dialogue* “Emerging Technologies” helped participants to clearly see Smart ICTs as a part of the emerging technologies suite of interventions while clean energy and the circular economy had been long accepted as CleanTech. Existing policies for innovation and product development require enhancement and should be seen as part of the fossil-free journey to 2030. It was also suggested that the emerging technologies required stakeholders to have stronger relationships which allowed them to improve on the current levels of information sharing. 50% women participation as speakers. 26 attendees, 42% women participation.

The *third dialogue* “Enabling Technologies” helped participants to appreciate the potential impact which could result from the accelerated implementation of RE technologies and Smart ICTs. Existing policies for RE and ICT were classified as volunteer-based and in need of review to create a push. Barriers were thought to require innovative solutions given long-standing sluggishness in key sectors. Stakeholder relationships are also too weak to support or sustain implementation which calls for more information sharing. The value of further dialogues that focus on deployment and the inclusion of regional organizations like CARICOM was seen as necessary inclusions to the way forward. 13% women participation as speakers. 27 attendees,

44% women participation.

The three dialogues confirmed the need for specific plans to be taken, including the distribution of the dialogue presentation as widely as possible, building support for the planned CleanTech Platform, strengthening of BLOOM administration to arrange future dialogues, development of stronger relationships between firms and the identification of synergies and common challenges.

There was also highlighted that key stakeholders like UWI, Ministries responsible for innovation and agriculture, and professional and business associations need to be actively engaged.

Moreover, the established BLOOM Clean Tech Cluster has organised various meetings involving private and public stakeholders.

There is mutual agreement to establish the platform as part of the high-level dialogue platform and the cross-sectoral coordination mechanism of the Partnership for Action on Green Economy (PAGE), reached between the main national and international stakeholders (e.g. UN Agencies). The implementation of the PAGE program in Barbados is based on the Green Economy Scoping Study developed in 2012. The coordination of the PAGE is led by UNDP in partnership with the Ministry of Environment and National Beautification (MENB) and in coordination with other UN Agencies (e.g. UNIDO, ILO, UNEP, UNITAR). Several public-private consultations were already undertaken under the umbrella of the established BLOOM Clean Tech Cluster. The cluster has a well-established cooperation with the members of the Barbados Chamber of Commerce and Industry (BCCI).

<p>Output 1.1.2</p> <p>A vision statement and strategy to promote the country as a hub for SEC technologies and services is developed and promoted abroad through various means</p>	<p>Vision statement and strategy for the “B-Greentech“ hub as part of the National Plan vision</p> <p>Off- and online promotion material disseminated in various sectors (e.g. tourism)</p> <p>Number of road maps</p>	<p>The development of the national clean tech vision statement is ongoing.</p> <p>One (1) Cluster Business Plan completed with Vision, Mission and Key Milestones and Objectives.</p> <p>One (1) road map has been established. This is also contained by the Business Plan 2020-2024. p. 68.</p> <p>Vision statement and tracking framework for the cleantech hub is currently under development by Ernst and Young Barbados and Mind the Bridge (available a contractual agreement).</p>	<p>The Government of Barbados launched the National Energy Policy 2017. The policy was designed to determine the general direction for the sector in broad terms, dealing with both renewable and fossil fuel-based energy. That document has as one of its core values, the development of entrepreneurship in renewable energy in Barbados. However, there has been a barrier related to the lack of coordination between government and other sectors to contribute to national development, and Barbados is not promoted systematically as hub.</p>	<p>Vision statement and strategy developed (a gender dimension will be included). At least 80% of the foreseen activities in the strategy were implemented during the project duration. Promotion material disseminated in at least 5 different sectors (a gender dimension will be included)</p>	<p>The BLOOM Cluster Business Plan 2020-2024 was developed. It includes the mission, vision, objectives and key milestones of the cluster. The Business plan was jointly co-signed by the Cluster Manager and Ms. Sonja Trotman, former CEO of BIDC (Barbados Investment and Development Corporation). The marketing material for the Bloom Cleantech Cluster is available, including Power point presentations, logos and internet pages. The material was disseminated to various stakeholders.</p> <p>In 2020, the GEF project already facilitated the development of the BLOOM Clean Tech label. Furthermore, BIDC announced to make BLOOM as an important part of the new national export strategy. Due to COVID-crisis, the Government puts major emphasis on the diversification of the economy. Clean tech was identified as an important area of growth. The GEF project is the most important initiative of the Government in this area.</p> <p>Moreover, UNIDO contracted EY and Mind the Bridge to develop the national clean tech vision statement. Currently, there is available an inception report and draft version of a tracking framework to be complemented with the results of surveys and consultative meetings. From a general perspective, the vision would look for achieving the following:</p> <ul style="list-style-type: none"> • Understand the direction and trends of the Cleantech industry with a special focus on innovation and startups • Support Barbados policy makers in making

					<p>data-driven decisions in order to facilitate further development of the Cleantech industry</p> <ul style="list-style-type: none"> • Complement existing data regarding Cleantech trends and explore the disruptive innovation evolution of the cleantech industry • Increase awareness and knowledge about Barbados’ desire to be a regional cleantech leader in the Caribbean and Latin America • Provide a document that can be used to generate interest from potential investors • Develop a tool to visualize the direction of the Cleantech industry so that it translates into actionable items in Barbados.
<p>Output 1.1.3</p> <p>Annual high-level policy dialogues on sustainable energy and climate industry issues are organized</p>	<p>Number of high-level policy dialogues organized</p> <p>Number of CEOs and senior officials participated in the dialogues (at least % female)</p>	<p>Three Public-Private Cleantech dialogues were organized in 2021 in cooperation with key stakeholders. More than 60 experts participated for the dialogues. On average, women were represented in 49% as attendees, and in 41% as speakers.</p>	<p>No high-level policy dialogues on SE industry and entrepreneurship</p>	<p>At least three (3) high-level policy dialogues are organized. At least 200 national, regional and international senior officials of the public and private sector (businesses, banks, investors) participate in the dialogues (participation of 40% women participation is envisaged)</p>	<p>The Dialogue on CleanTech entrepreneurship and innovation followed the development of a Concept Paper to develop a CleanTech Platform and address the challenges faced by stakeholders and the shortcomings with current approaches, like weak stakeholder relationships and unsustainable communication as well as lack of trust. Therefore, three dialogues were organized, aiming to:</p> <ul style="list-style-type: none"> • Encourage the participation of all CleanTech Cluster stakeholders • Invite the participation of national, regional, and international speakers from the public and private sector • Explore the legal, regulatory and implementation environment in Barbados • Share experiences of cluster members • Expose stakeholders to the broader environmental issues through presentations • Gain insights from stakeholders <p>In this regard, three scope areas were defined since there exists a wide scope of firms and stakeholders involved in the Clean Tech industry in Barbados: (i) Circular economy, (ii) emerging technologies, and (iii) enabling technologies.</p> <p>Each of the three Dialogues were designed to last three</p>

					<p>hours in the morning and include between five and six sessions with speakers from local and international countries. The individual sessions were designed to be 30 minutes each, with 15 minutes for presentation and 15 minutes for discussion. A few sessions were conducted using a discussion format only.</p> <p>Further details provided in Output 1.1.1.</p>
<p>Output 1.1.4</p> <p>Demand creating and supplier oriented proposals to improve the coherence and effectiveness of policies and legislation are formulated and under implementation</p>	<p>Number of proposals developed and discussed in policy and legislative processes</p> <p>Number of demand-creating and supplier-oriented policies, laws or standards on SEC technologies approved and under implementation</p> <p>Number of inputs to mainstream SEC technologies into cross-cutting policies in key economic sectors (e.g. generation and distribution of power and energy services,</p>	<p>Clean Tech Policy Readiness Assessment report completed in 2020 in cooperation with local consultant.</p> <p>3 cleantech reports: Cleantech Platform, Readiness Assessment and QI assessment report (draft version) and cleantech tracking framework (draft version)</p> <p>Identified 30 policy proposal: 6 on circular economy, 4 on clean technology – electronic, 7 on clean technology – energy, 7 on cross-cutting areas and 6 on support areas.</p> <p>Ten (10) policy and legal proposals.</p>	<p>Three main issues were identified as significant hurdles to private-sector development: (i) public sector productivity, (ii) R&D activity by the private sector and (iii) finance for start-ups. Other drawbacks include tax rates and labour market rigidity. Contradictions between existing policies and fiscal disincentives and tax regimes that increase the cost of doing business could lead to more people leaving the market and a lack of interest of others taking the risk and entering.</p>	<p>At least 30 proposals developed and discussed in policy and legislative processes. At least 10 of demand-creating and supplier-oriented policies, laws or standards on SEC technologies are approved and their implementation facilitated. At least ten (10) inputs to mainstream SEC technologies into cross-cutting policies in key economic sectors (e.g. generation and distribution of power and energy services, construction, fisheries and agro-processing, tourism, transport, waste management, as well as water/desalination).</p>	<p>On the level of the BLOOM cluster an innovation policy was launched in 2021: The Cleantech Incubator involves clear rules and criteria for the assessment and rating of applicants. Incubation programs and agreements were developed. Grant financing is available for selected residential incubatees through GEF.</p> <p>Furthermore, there is available the Barbados Clean Tech Policy Readiness Assessment, which aimed to:</p> <ul style="list-style-type: none"> • Identify gaps and make at least thirty (30) concrete proposals on how to better incentivize the participation of the local industry in clean tech manufacturing and servicing value chains. • Shed light on how clean tech products and services can be better promoted through cross-cutting policies • Support BLOOM in the further detailing of ten (10) policy and/or legal proposals, which will be brought to the attention of relevant policy and decision-makers for consideration <p>This report highlighted that “Barbados lacks a robust policy environment for the CleanTech industry. The progress made so far has been largely led by the private sector with delayed support by the public sector. Since the private sector does not make policy, the development of parts of the CleanTech industry</p>

	<p>construction, fisheries and agro-processing, tourism, e-transport, EE of the buildings waste management, as well as water/desalination)</p> <p>Number of stakeholders involved in policy development</p>	<p>Number of stakeholders involved in policy development and Cleantech Policy Assessment Report in 2021-22: 28</p> <ul style="list-style-type: none"> - MIIST (Ministry of Industry, Innovation, Science and Technology) -MENB (Ministry of Environment and National Beautification) - Ministry of Energy and Business Development -Ministry of Maritime Affairs and Blue Economy - Ministry of Agriculture and food security - BREA - Barbados National Standards Institute - Fair Trading Commission - Barbados Manufacturing Association - 6 ministries - 15 cleantech firms <p>On the level of the BOOOM cluster, three (3) innovation policies were launched in 2021-2022: The Cleantech Incubation program and LIF 2022 acceleration program in cooperation with RaEng (UK) and CE accelerator 2022 in cooperation with IDB</p>			<p>has been ad-hoc even though with some success”.</p> <p>Furthermore, 30 proposals were made on the following areas:</p> <p>i) Proposals for Circular Economy (6-six):</p> <ul style="list-style-type: none"> - Waste Material Management, to capture as much useful waste as possible for future reuse - Incentivised Packages, to provide incentives and financial support for suppliers and CE businesses. - Enhanced Centralized Collection Sites , to create appropriate collection sites for special waste materials. - Waste Awareness, to raise awareness about the use of traditional waste. - Wastewater Use Amendments, to open new opportunities for the use of wastewater, - Material Circulation and Value Extraction, to implement policies that encourage the maximization of resources. <p>Of the 12 CT firms contacted, 6 responded.</p> <p>ii) Proposals for Clean Technologies Areas (Electronic) (4 – four):</p> <ul style="list-style-type: none"> - Establish an ICT Professional Licensing Regime, to develop a licensing regime to protect clients - Broaden the scope of Waivers for ICT and Smart Technologies, to create support for a present-day ICT environment. - Streamline and accelerate the implementation of B2B and B2C electronic solutions, to create an enabling environment for technological transformation. - Develop Technology Conference Events, to create greater exposure to cutting-edge technologies <p>Of the 12 CT firms contacted, 6 responded.</p> <p>iii) Proposals for Clean Technologies Areas (Energy) (7 – seven)</p>
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and SAGANA.

- Develop a comprehensive EE labelling scheme for buildings, to provide a scheme that allows potential tenants to make informed decisions.
- Establish RE level for Commercial Properties, to ensure RE is integrated into our commercial infrastructure. It may be implemented as part of the EPC for Buildings.
- Establish RE level for Residential Properties, to ensure RE is integrated into our residential infrastructure. It may be implemented as part of the EPC for Buildings
- Develop Regulations for Power Producers below 1MW, to provide better coverage for a wider range of power producers.
- Develop Energy Policies at the Business Level, to engage the major energy consumers in the energy transformation.
- Develop standards for safety on roofs, to create a safe environment for workers.
- Promote existing RE Environment to Engage Business, to encourage businesses to take advantage of current benefits.

Of the 12 CT firms contacted, 6 responded.

iv) Proposals for Cross-Cutting Areas (7– seven)

- Complete Key Studies, to provide key sectors with research information to guide them
- Equipment Disposal, to ensure equipment and material is safely disposed.
- Encourage Private Sector Participation Through Events and Seminars, to offer sector specific technology solutions to each sector.
- Improve Coordinate with Supporting Agencies, to explore any synergies which may exist.
- Promote Digitization, to improve process efficiencies and create data use opportunities.
- Promote Paper Minimization, to minimize paper usage.
- Promote Use of Digital Equipment Across Sectors, to create better connectivity and to create more opportunities.

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<p>Nine (9) sectors were contacted and 6 responded: Transportation, Water, Manufacturing, Construction, Waste Management, Agriculture, Industrial and Commercial Sectors</p> <p>v) Proposals for Support areas (6– six)</p> <ul style="list-style-type: none"> - Modelling Technologies, to model new technologies for others to see that they work - Revision of Central Electricity Legislation, to have legislation that is current and reflected in the electricity sector - Develop a National Environmental Policy, to provide national guidance on environmental matters. - Develop ICT Cleantech Policy, to provide national guidance on ICT CleanTech matters. - Finance Facilitation, to facilitate an attractive financial environment for CleanTech - Promote an Integrated utility Service model, to accelerate the deployment of major energy efficiency projects. <p>Six (6) of the 8 policy makers responded</p> <p>Furthermore, among the identified proposals, 10 were prioritized according to the following criteria: Opinions of policy maker stakeholder; Coverage of significant recommendation(s) or barrier(s); Capability to create significant impact; Suitability for local market; and, Capacity to gain political will. The 10 main proposals are:</p> <ul style="list-style-type: none"> ✓ P1-Create a package to incentivize businesses ✓ P2-Enhance waste management and related facilities ✓ P3-Boost engagement and market education ✓ P4-Develop an ICT professional certification regime ✓ P5- Develop Energy Policies at the Business Level ✓ P6-Streamline & accelerate the implementation of
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					<p>B2B and B2C e-solutions</p> <ul style="list-style-type: none"> ✓ P7-Policy Updates including Environment and Circular Economy ✓ P8-Establish RE minimum requirements for residents and businesses ✓ P9-Disposal of equipment and materials ✓ P10-Digitization <p>On the level of the BOOOM cluster, three (3) innovation policies were launched in 2021-2022: The Cleantech Incubation program and LIF 2022 acceleration program in cooperation with RaEng (UK) and CE accelerator 2022 in cooperation with IDB and SAGANA.</p> <p>Finally, there is available a draft version of the Clean Tech Quality Infrastructure Framework. Its main objective is to derive practical recommendations on how to improve the current framework, eliminate barriers and access quality infrastructure services as well as explore the potential role of BLOOM regarding standards development, quality infrastructure assurance and enforcement.</p> <p>Broad consultation was conducted directly with some BLOOM CleanTech Cluster members and other key stakeholders across the sector. Quality Infrastructure (QI) experts, policy makers and National Standards Body (NSB) professionals were also interviewed. The assessment identified the Global Quality Infrastructure Index (GQII) as an applicable QI measure since it is an internationally accepted measure that allows country comparisons. A comparative review of external CleanTech QI structures was conducted to receive a better understanding of how Barbados' CleanTech sector correlates. The local CleanTech QI structure was also reviewed and observed to capture its applicability and relevance. Local QI actors were identified along with their general service offerings, their role in the NQI and the service they can offer to the CleanTech sector. Regional and international actors who can offer QI services to the CleanTech sector were also identified.</p>
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Project Component 2 – Investment and Business Promotion					
<p>Outcome 2.1</p> <p>Increased investments into the domestic sustainable energy servicing and manufacturing industry in technology areas with high GHG emission and value creation potential</p>	<p>% increase of annual investments in sustainable energy and climate technology businesses by project end (baseline 2017)</p>	<p>It is still too early to report on the results on the outcome level in detail.</p> <p>Indicators reported show the satisfactory results of the project: 11 companies have become part of the Bloom Cluster. There are 11 incubation agreements and 88 stakeholders are working with the clusters. 13 local, regional and international agreements have been signed, and 8 private investors are working with the Bloom.</p>	<p>Low investments in the domestic manufacturing and servicing industry</p>	<p>20% increase of annual investments in sustainable energy and climate technology businesses (baseline 2017)</p>	<p>It is still too early to report on the results on the outcome level in detail.</p> <p>At the moment, the Cleantech Incubator is established with 11 incubatees and is receiving full support from BIDC. 10 business models and 9 business plans were completed in cooperation with Bloom Cleantech Cluster members.</p> <p>There are committed funds by grant, loan financing and private equity, capital raised by startups, and in-kind and public co-financing. 13 local, regional and international agreements have been signed and 11 incubation agreements.</p> <p>It is worth highlighting that one of the incubates, by GoodRidgePower, is in process of accessing to PFAN financing through a submission proposal of to \$ 800 000. Furthermore, 88 stakeholders are working with the Bloom Cluster. Among them are the following investors: Williams Caribbean Capital, Private business angels, Diproinduca Inc, SAGANA, Circulate Capital, and banking facilities: RBC and Republic Bank</p> <p>BIDC is committed to making the BLOOM an important pillar of the new national export strategy. Due to the impact of COVID-19, the Government is currently strengthening its efforts to diversify the economy and reduce its dependence on tourism and fossil fuel imports.</p>

<p>Output 2.1.1</p> <p>A sustainable energy and climate technology cluster hub is created and provides effective services to its expanding member base</p>	<p>One technology cluster is operational</p> <p>Number of working groups established after 5 years</p> <p>Study tours to Latin America, Europe, Israel related to RE and Climate Technology Clusters and Innovation Agencies</p> <p>Number of paying cluster members after 5 years</p> <p>Number of prototypes and business ideas developed and tested after 5 years</p> <p>USD of funding for the activities of the cluster raised by the cluster management after 5 years</p> <p>USD of raised investment for business ideas developed in the scope of the cluster (committed not contracted)</p>	<p>In 2020, after a conducted survey, it was identified that 84.38% of possible organizations that can become cluster members are working out the RE field. However, 96.67% of them are interested in using RE or cleantech products/services. 34.67% of companies have started to develop projects in relation to cleantech, for which, they also need technical (23%) and technical and funding support (23%).</p> <p>Clean technology cluster is operational (Circular Economy, RE,) and is hosted by BIDD HQ.</p> <p>Incubation program is working under Bloom Cleantech Cluster with 11 incubatees and it is backed by the project team with 4 staff members. 1 Project officer and 1 assistant recruited for the cluster in 2022.</p> <p>11 startup companies are members of the Bloom Cluster hub: - GoodRidgePower - ProSolar 246 - BIMEV</p>	<p>The industry of sustainable energy technologies (e.g., PV, small scale wind, solar thermal, electric storage, electric vehicles/charging) are featured by (i) huge GHG emission reduction potential, (ii) established market with experienced players for mainstream technologies, (iii) experience in assembly or fitting of components, (iv) a good image of SET by the public, and (v) economic viability that is acceptable for early adopters. However, there are the following limitations: (i) lack of local experience and design/engineering capacity for large scale systems or not so common but otherwise well-developed technologies, (ii) key parts/components are imported, and (iii) economic viability is not acceptable for mass market. Contrary to that, opportunities come up to make the Barbados industry a role model for many others in the region and to foster a strong market potential in hotel and in specific niche markets, with low competition from external suppliers.</p>	<p>At least 1 technology cluster is fully operational. At least 10 private sector working groups established after 5 years (at least 40% women participation is envisaged). Guided tours for at least 150 participants to the cluster and SEC (Sustainable Energy and Climate Technology) demonstration sites organized (tourists, delegations). At least 30 contributing private-sector cluster members after 5 years (at least 40% women participation is envisaged). At least 5 prototypes and business ideas developed and tested after 5 years. At least USD 4 million of funding for the activities of the cluster raised by the cluster management. At least 10 million USD of raised investment for business ideas developed in the scope of the cluster (committed not contracted) after 5 years. Biannual sustainable energy and climate technology survey and industry report prepared and distributed. At least 70% of satisfaction with the services of the cluster services by its members after 5 years (survey)</p>	<p>The Barbados Investment Development Cooperation (BIDC) has taken ownership of the BLOOM Cleantech Cluster and is providing key administrative, financial management, and technical support. UNIDO and BIDC have signed a first funding agreement on the execution of the project cluster component in November 2019. In line with the established “twinning” modality, UNIDO continues to provide execution services to the cluster. Furthermore, the Bloom Cluster is becoming a national priority project thanks to the support of BIDC and the valuable results.</p> <p>The Bloom Cleantech Cluster (BLOOM) was established and it has been fully operational since September 2020. An experienced international cluster manager was recruited. He is assisted by a local team provided by BIDC (e.g. deputy manager, secretarial and communication support). The Bloom Cluster was officially launched on 31st January 2020 in cooperation with BIDC senior management and local media. Minister Ronald Topping officially inaugurated Bloom Cleantech Cluster and his speech was published in the local newspapers. In May 2021, it was established the new Bloom Cluster office for the Cluster Manager at BIDC.</p> <p>The Cluster Manager has established the policies and services packages of the cluster and has kick-started its operations. The Cluster Business Plan was completed in February 2020 and was jointly signed between the Cluster Manager and Ms. Sonja Trotman, former CEO of BIDC. The cluster has already established a broad range of international partnerships and implemented first activities and call for applications. The cluster website is available at: www.bloomcluster.com. During 2021, the cluster start to broaden its operations and aim for sustainability within the BIDC framework. The Bloom Cluster is utilizing modern cluster strategy tools developed by a Norwegian cluster development organization (www.strategytools.io).</p> <p>The Cluster Business Plan 2020-2024 was completed in February 2020. 100% customer satisfaction</p>
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<p>after 5 years</p> <p>Biannual sustainable energy and climate technology survey and industry report</p> <p>% of satisfaction with the services of the cluster services by its members after 5 years (survey)</p>	<ul style="list-style-type: none"> - SJPI - Solar Powered e-Vessel Project - EcoMycö - Green Collective - Red Diamond - HGFC (Healing Grove Container Farm-Climate Resilient Agriculture) - OnSolar Solutions Inc - CEMBI (The Caribbean Environmental Management Bureau) -Iron Charging Solutions <p>Number of startup candidates applied for incubator and accelerator programs 2021-22 (6)</p> <p>20 grant agreements signed with Bloom incubatees. (10 business and 10 prototype grants)</p> <p>Number of coaching sessions with startups: 48</p> <p>Number of business models updated and completed: 10</p> <p>Number of business plans updated: 9</p> <p>2 startups participated in the LIF/RaEng training workshop in Medellin, Colombia in 2022</p>	<p>achieved during the first 6 months in Sep 2020-March 2021. 60% of the cluster startup cluster members have received international and regional grant financing so far. The Cluster website is completed. Several online training courses started with startups in Coursera platform and in cooperation with GSK, ILO and UNIDO. Information about the cluster is being shared through the BIDD webpage (https://www.bidd.org/)</p> <p>BLOOM signed a number of memberships and cooperation agreements with cluster organizations, science parks and climate innovation centres and climate accelerators, such as BCCI, UWI, IDB, IASP (International Association of Science Parks and Areas of Innovation), Caribbean Climate Innovation Center (CCIC), Climate-KIC, Caribbean Climate Smart Accelerator, TCI, and GN-SEC, and the European Cluster Collaboration Platform (the project's information is available on its website: https://clustercollaboration.eu/content/bloom-clean-tech-cluster).</p> <p>The cluster has established a strong relationship with the Barbados Chamber of Commerce and Industry. The Chamber joined the selection panel of the incubation calls and assisted the cluster in the cleantech business survey (June 2020), which was distributed to its 300 members.</p> <p>Cleantech Business Survey was organized in association with BCCI. The aim of the survey was to identify companies having interest to utilize cleantech and RE solutions in their own business or develop and establish RE and cleantech business activities. Survey was implemented by using Survey Monkey application software. Results show that 84.38% of possible organizations that can become cluster members are working out the RE field. However, 96.67% of them are interested in using RE or cleantech products/services. 34.67% of companies have started to develop projects in relation to cleantech, for which, they also need technical (23%) and financial and funding support (23%). Those companies who are not developing cleantech projects indicated that energy</p>
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efficiency and waste reduction measures could be applied in their businesses.

The BLOOM Cleantech Incubation Program implemented two calls for applications. 14 applicants were invited for the interviews that were held in Newton Incubation Facility on 29-30 July 2020. 5 candidates were selected for the in-house incubator and 5 candidates for the virtual pre-incubator.

Candidates represented a wide diversity in the cleantech field ranging from Solar PV, energy storage, blue economy, green chemistry, biotechnology and recycling. The first Top 5 incubatees located in the Newton Business Incubator unit were: a.) ProSolar 246 Inc b) OnSolar Solutions Inc c) Kerri-Ann Bovell-Biodegradable plastics R&D d) BIMEV Rental Services Inc e) SJPI-Solar Powered e-Vessel project Furthermore, other 5 incubatees were selected for the 6 months pre-incubation program. These are The Caribbean Environmental Management Bureau-Recycling App; Red Diamond Compost-Green agrochemicals; Good Ridge Power-Solar PV Consulting; Dee's Enterprise-Agar and alcohol production; and, Healing Grove Container Farm-Climate Resilient Agriculture.

Similarly, in May 2021, a new call was completed. However, only 1 application was received for the incubation program. The Bloom undertook a Bloom Cluster email Marketing campaign for the SMEs and Corporations in order to attract new cluster members. There was interest in joining the Bloom from; Sol, Emera Caribbean and Megapower Inc. Overall, during 2021 – 2022, 6 (six) startup candidates applied for incubator and accelerator programs at the Bloom.

Therefore, in June 2021, a new call was published for applications for the Bloom Cleantech incubation program at Nation and Barbados Advocate.

<http://www.bidc.org/bloom-2021>. Application form is downloadable at <http://www.bidc.org/forms/bloom>

At this stage, the Bloom Cluster counts with the participation of 11 startups (10 mentioned above) and Iron Charging Solutions as the newest.

At the moment, the Cleantech Incubator is established with 11 incubatees. 10 business models and 9 business plans were completed in cooperation with Bloom Cleantech Cluster members. en-collective-246). Startups are reinforcing their business models and the Bloom Cluster is utilizing the Live Plan Pro platform for more efficient exchange with incubates. Recent reviewed business plans include GoodRidge Power, Green Collective 246, Red Diamond and BIMEV.

Finally, the development of the "Barbados Cleantech Industry report and tracking framework" is ongoing. EY and Mind the Bridge were awarded to develop the following: 1) Clean Tech Industry Assessment and Database, incl. tracking framework; 2) Clean Tech Industry Report, incl. summary document for policy makers and clients; y, 3) BLOOM Clean Vision Statement and Label (incl. corporate identity design). Currently, there is available a draft version of the Tracking framework report that will incorporate the contributions of Barbadian companies. The Framework is based on the following 2 main axes:

- Clean Tech Innovation Public Policy - Government strategies, policies, and enabling conditions (quali-quantitative data)
- Clean Tech Innovation Outcome - Clean Tech investments, startups/scaleups, density, etc. (quantitative data)

The tracking framework is designed to provide an internationally comparable synthetic scoring mechanism of the ecosystem which considers all the proposed specific indicators. The scoring mechanism - for each analyzed ecosystem - combines the enabling conditions (eg. qualitative data, stakeholder's

perspective, etc.) versus a quantitative picture of the relative size of the local Clean Tech innovation ecosystem on a matrix, whose axes represent the ecosystem's performance in the two above-mentioned areas.

Moreover, a first study tour took place in Colombia on April 22-26, 2022 under the organization of LIF 2022 Global program in partnership with the Bloom Cluster. At this event named: Introduction of Plastic X circularity program by SAGANA, LIF 2022 Global program progress and Colombia trip, 2 startup entrepreneurs from Barbados were attending. They are Ms. Cherith Pedersen and Mr. Andre Murrell from Iron Charging Solutions. Flights, hotels and per diem were generously provided by the Royal Academy of Engineering, UK. The purpose of the in-country workshop was to practice pitching with LIF 2022 program cohort in Colombia and to refine the business model in cooperation with other participants, mentors and coaches.

In the same line, a second study tour is being organized in partnership with UNIDO and Green Tech Cluster (Grasz, Austria). The study tour is envisaged for 3-13 Sept. 2022. The study tour will also take place in parallel to the 5th GN-SEC Steering committee meeting in Vienna. The Barbadian representatives and the Bloom Cluster team will participate in this meeting with individual sessions with potential partners and GN-SEC centres for replication of the project. The study tour has the following objectives:

- Provide opportunity for BLOOM start-ups to learn about business development and international promotion through interactions with European Clean Tech clusters
- Observe the process operation of industrialised bioenergy technologies
- Assist in the formulation of coherent policies and frameworks required in Barbados for technology implementation and scale-up.
- Increase industry partners and entrepreneurs knowledge of opportunities in the sector

There will be 14 attendees with 36% of women participation among incubatees and government representatives. Among possible research centres and clusters to visit are: BEST Bioenergy and sustainable technologies (Grasz), HycentA Research (Grasz), Green Tech Cluster (Grasz), Biogas or Green Hydrogen Plant in Copenhagen, Sustainable Business Hub (Sweden).

Finally, the cluster progress has been impacted significantly by the fiscal crisis of Barbados and the global COVID-19 pandemic. The governmental change following the parliamentary elections in May 2018 and the fiscal crisis of the country marked a major shift of paradigm. Due to the difficult situation, the new Government had to enter into the five-year Barbados Economic Recovery and Transformation (BERT) Program with the International Monetary Fund (IMF). The BERT program included the requirement to significantly reduce public spending and service. Several governmental agencies were privatized. Therefore, in 2019, MIBI and BIDC had to withdraw partly from the financial commitments to the GEF project. The co-financing is not being materialized as it was expected due to the impacts of the Barbados Economic Recovery & Transformation (BERTS) program and COVID-19 pandemic.

“Barbados’ economic outlook for 2022 will be heavily influenced by its continued vulnerability to external shocks. The International Monetary Fund is forecasting an increase in global economic activity of 4.4 percent, but the strength of the recovery in tourism-dependent economies like Barbados will be affected by the ability of countries across the globe to control the spread of the pandemic that has caused our economy to operate well below its potential over the past two years... The government remains committed to the fiscal discipline needed for the sustainability of its debt over the medium term. The adoption of fiscal rules designed to place the debt ratio on a sustainable path is critical to this

					<p><i>commitment</i>⁵.</p> <p>Therefore, it was necessary to extend the project for one year (up to June 2023). In light of this, there is available a handover plan to be implemented during 2020-2023 in order to ensure the whole appropriation of this project at BIDC (Export Barbados, national counterpart). The Cluster manager will train and transfer the responsibilities of the project to the Cluster coordinator at BIDC, Mr. Terrell Thompson, a designated person from BIDC. Several coordination meetings are being held on this matter, last meeting on May 4th.</p>
<p>Output 2.1.2</p> <p>A dedicated financing facility provides grants and concessional loans for the commercialisation of business ideas and innovations developed in the scope of the cluster</p>	<p>Number of calls for proposals of the facility on technology priority areas implemented</p> <p>Number of specific calls for women entrepreneurs undertaken</p> <p>Amount of USD of facility funding contracted and implemented (in USD) after five (5) years</p> <p>Number of businesses supported through grants and/or concessional loans after five (5) years</p>	<p>Grant financing generated by the cluster team</p> <p>- 200 000 USD grant financing issued for the startups (100 000 USD incubator grant and 100 000 USD for prototype capital.)</p> <p>Committed amount of USD by grant financing for 10 startups in 2022:</p> <p>\$266,000 USD</p> <p>-GEF/UNIDO: 200 kUSD</p> <p>- UNDP SGP: 50 kUSD</p> <p>-Other: 16000 USD</p> <p>Expected revenues 2022 based on startup BPs.</p> <p>-GoodRidgePower: 91000 USD</p> <p>- Green Collective 246: 331 000 USD</p> <p>- BIMEV: 528 000 USD</p>	<p>Lack of funding for start-ups and SEC ideas and technologies.</p> <p>Low incentives/ tax system not in support of activating the low income household or hotel & tourism industry.</p> <p>Market regulations too weak (regulations not certain enough to reduce risks for investors, regulations not strong enough to impose a demand). Changes in fiscal and financial regulations can bring market easily to a stand still.</p> <p>However, there is the Barbados Income Tax Act (2013 BITA) that allows deductions of the costs of training in renewable energy and energy efficient systems for individual taxpayers and for minors and young adult students who are under 25 years old and</p>	<p>At least 3 calls for proposals of the facility on technology priority areas implemented. At least 1 specific call for women entrepreneurs undertaken.</p> <p>USD 2 million of facility funding contracted and implemented (in USD) after five (5) years. At least 30 businesses supported through grants and/or concessional loans after five (5) years</p>	<p>The creation of a funding window to support cluster members and start-ups is of the highest importance for the sustainability of the cluster. Benefiting businesses and start-ups would need to become members of the Cluster. In this context, several meetings with the European Commission and IDB were organized. MIBI has directed an official request to the Ministry of Energy and Water Resources (MoEWR) to earmark part of the IDB Smart Energy Funding Phase II to this facility. The total budget of the smart energy fund 2 SME component is US\$ 15 million. Up to now, Smart Energy Fund 2 is not operational yet. Within the framework of the GEF project, UNIDO discussed with IDB potential support for the creation of a National Innovation Agency (NIA) in Barbados. The national agency would be part of a regional network in the Caribbean. The feasibility study for the establishment of an entrepreneurship financial facility will be commenced in 2022.</p> <p>Two (2) proposals amounting to \$ 375 000 USD per each were submitted to the IDB funded Compete Caribbean program in Jan 2020 and Jan 2021, respectively. 1 PFAN proposal submitted in Feb 2021 amounting to \$ 600 000 USD and 4 women led startups were involved. Additionally, the committed amount of grant financing for cluster members is</p>

⁵ <http://www.centralbank.org.bb/news/article/10673/outlook-for-the-barbados-economy-in-2022>

	<p>Number of joint projects established by the cluster</p> <p>Project financing generated by the cluster team</p> <p>Committed amount of USD by grant financing (it is usually for early start-ups)</p> <p>Committed amount of USD by private equity (company owns shares)</p> <p>Committed amount of USD by loan financing (from commercial banks)</p> <p>Amount of capital raised by the startups</p> <p>In-kind co-financing raised</p>	<p>TOTAL: 950 kUSD</p> <p>Forecasted sales by 2024: 3,65 MUSD.</p> <p>Committed amount of USD by private equity: \$ 19,631 USD</p> <p>Committed amount of USD by loan financing: \$ 19,500 USD</p> <p>In-kind co-financing: \$ 100,000 USD</p> <p>Public co-financing raised by the cluster</p> <ul style="list-style-type: none"> - MIBI: \$ 28,436 USD (cash) - BIDC: \$ 300,000 USD (in-kind salaries and utility costs) <p>Number of calls for proposals organized in 2021-22: 4 calls. (LIF 2022 Accelerator by RaEng (UK), Call for SEED financing program by Diproduca Inc (Canada) Ocean Innovation Challenge and CE Acceleration program 2022.</p>	<p>unemployed. There are also deductions for some training available in RE/EE systems that is approved by the Barbados Accreditation Council, and an income tax holiday of ten years for developers, manufacturers and installers of RE systems and EE products.</p>	<p>266,000 USD (GEF SGP grant program, UNDP Blue lab accelerator, UNIDO-GEF financing).</p> <p>As result, the Goodridge Power's (Bloom pre-incubatee) RE generation programme was selected into the PFAN project pipeline. The company is eligible to receive expert coaching support from the PFAN's coaches. http://pfan.net. Coordination meetings between PFAN and its consultants and GoodRidgePower initiated in November 2021. Currently, Goodridge Power's financial proposal has been revised by the Review of PFAN project financing application team, and it continues under the key stages of the PFAN project financing process.</p> <p>On the other hand, on 30 June 2021, an award ceremony was organized to release certification for recipients start ups of small grants (5 companies were awarded with \$ 20 000 BDS award per each) to develop business plans including prototyping, IP, marketing and sales, validation, etc. This activity was coordinated with BIDC, and the awarded start ups were: BIMEV, EcoMycö, ProSolar 246, OnSolar and SJPI Solar power e-fishing vessel project. BCCI executive director Ms. Misna Clarke and BIDC CEO Mr. Mark Hill jointly inaugurated the award ceremony.</p> <p>In the same line, there were prepared prototype capital award letters (10 000 USD per startup) for 10 startups in cooperation with UNIDO HQs on 22-23 November. A second Grant Award Ceremony for the 5 Bloom Incubatees took place on 11th January 2022 at 10-11 am in Bagnall's Point Gallery, Bridgetown. Incubator grants amounting to 10 000 USD were awarded for the following startups: Caribbean Environmental Management Bureau (CEMBI), GoodRidgePower, Green Collective 246, Healing Grove Container Farm, Red Diamond Compost Inc. Representatives of the press had been invited to the award ceremony. Speakers of the ceremony were: Mr. Mark Hill, CEO of Export Barbados, Andy Armstrong, BCCI, Terrence Terrell, Export Barbados. Appr. 20 people attended for this ceremony including guests, incubatees, Bloom Cluster, speakers and media.</p>
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Public co-financing raised by the cluster

<https://www.barbadoschamberofcommerce.com/elevate-local-cleantech-companies-to-benefit-from-bcci-representation-and-support/>

There has been participation in 4 calls for proposals in 2021-22: (LIF 2022 Accelerator by RaEng (UK); Call for SEED financing program by Diproinduca Inc (Canada); Ocean Innovation Challenge; and, CE Acceleration program 2022. Regarding the call for SEED financing jointly organized by the Bloom and Diproinduca: there is one shortlisted candidate.

Additionally, a consultant was hired to develop the Mid term review of the project, and the deliverables also include the development of a concept note for one project proposal that could be submitted to GEF 8. The concept note is to be available in Sep. 2022.

Moreover, UNIDO is assisting the project in the development of a new concept idea in cooperation with CCREEE, SIDS DOCK, CARICOM: “Unlocking the Caribbean market potential of seaweed and macroalgae for productive uses, coastal protection, energy and climate resilience”. This concept project will be submitted to GEF8.

Furthermore, during 2021-2022, the Bloom Cluster has been holding discussions/involved in events organization in order to commit support to the incubator program. Key meetings listed below:

- In July 2021, meeting with Mr. Dami Adesegha, Head of Renewable Energy Division at Sol Petroleum. Discussion about cooperation with Bloom Cleantech Cluster as a seed financing partner for the Bloom cleantech startups. Envisaged to organize online pitching event in cooperation with Sol Petroleum in www.solpetroleum.com
- Organizing matchmaking event for the Bloom startups in cooperation with Paula Greene, Team Leader, Canadian Government Business Initiative CREF 2021. B2B online meetings with Canadian companies. 27-29 October, 2021.
- Participation to the 7th World Investment Forum

					<p>event organized jointly by UNCTAD and IASP. Investing in Innovation based Development. October, 2021.</p> <p>https://www.iasp.ws/activities/news/iasp-collaborates-with-unctad-at-the-7th-world-investment-forum-----</p> <ul style="list-style-type: none"> - Meeting with Heikki Paakkinen, CEO of Wello Oy at Tapas restaurant on 26 November, 2021. Discussion about Wello's business plan in Barbados and review of Wello's pitchdeck. - Meeting with Karla Chavez, EcoIns at Costa Rica on February 21, 2022. - Organizing a call for pitchdecks in association with Diproinduca Inc on February 18, 2022.
<p>Output 2.1.3</p> <p>A business match-maker provides market intelligence and interlinks cluster members with technology companies, investors and venture capitalist in the Caribbean, the diaspora and internationally</p>	<p>Number of business intelligence briefs on key SEC growth market areas in the Caribbean are available for cluster members</p> <p>Number of SEC match-making and/or investment forums organised in the Caribbean</p> <p>Number of Barbadian businesses participate in Caribbean and international match-making and/or investment forums (at least % female)</p> <p>Number of</p>	<p>Business intelligence unit commenced their work in Jan 2021.</p> <p>(2) Two consolidated business partnerships between Bloom Cluster and RaEng and SAGANA was established in Jan-May 2022.</p> <p>One (1) Matchmaking and pitching event with private SEED investor was organized in April 2022. Focus: Circular Economy.</p> <p>Number of cluster members (Public and private): 20</p> <p>Number of regional and international partnerships: 6</p> <ul style="list-style-type: none"> - CCIC - ECCP 	<p>The Barbados Investment and Development Corporation (BIDC) is a statutory body of the GoB with a focus on fostering the development of bold, innovative, dynamic and creative enterprises.</p> <p>BIDC's core services are: (i) Entrepreneurial Development; (ii) Export Development and Promotion; (iii) Research and Information Services, and (iv) Property Development and Leasing.</p> <p>However, there is a lack of systematic investor and business match-making in the SEC sector. Additionally, only a very small number of Caribbean business to business partnerships in the SEC sector. Moreover, traditional financial institutions do not provide financing for start-ups or</p>	<p>At least 5 business intelligence briefs on key SEC growth market areas in the Caribbean are available for cluster members. At least 3 SEC match-making and/or investment forums are organised in the Caribbean. At least 40 Barbadian businesses participate in match-making and/or investment forums (at least 40% female participation is envisaged). At least five (5) consolidated business partnerships between Barbadian and Caribbean or international companies in the scope of the cluster are created</p>	<p>Discussions with various stakeholders on potential partnerships on the provision of tailored Caribbean market intelligence have been held. The Business intelligence Unit has been established at Bloom Cleantech Cluster and three key project officers and an assistant were recruited for that purpose. The customer account management system was created in cooperation with the project officers. The Project officers provide business intelligence services to the cluster members, including assistance in development of business models and business plans.</p> <p>Two UNIDO funded start-up teams participated in the Climate launchpad event, the world's largest pitching and matchmaking event for climate technology start-ups that was held in Amsterdam in November 2019. Red Diamond and Kerri-Ann Bovell joined these events.</p> <p>In February 2021, an agreement between Bloom and the Climate Launchpad - CLP (from Climate KIC) was signed for joint activities. Bloom supported the preparation of the Climate Launchpad bootcamp in association with CLP secretariat (July 2021) CLP secretariat provided international trainer for the online bootcamp event.</p> <p>On the other hand, project proposal team was</p>

<p>consolidated business partnerships between Barbadian and Caribbean or international companies in the scope of the cluster are created</p> <p>Number of stakeholders working with the cluster</p> <p>Number of cluster members (Public and private)</p> <p>Number of regional and international partnerships</p> <p>Number of local, regional and international agreements</p> <p>Number of stakeholders working in the cluster</p> <p>Number of private investors and banks working with the cluster</p> <p>Jobs generated by the startups/cluster members</p>	<ul style="list-style-type: none"> - IASP - RaEng LIF 2022 - Diproinduca - Sagana <p>Number of local, regional and international agreements (13)</p> <ul style="list-style-type: none"> - Incubation agreements (11) - MoUs (1) - GEF execution agreement (1) <p>Number of stakeholders working with the cluster: 88</p> <ul style="list-style-type: none"> - MIBI: 3 - MIIST: 2 - MoENB:1 - MoEBD 1 - MoAFS 1 - MoBEMA 1 - PAGE:1 - CCREEE: 3 - BIDC: 12 - BCCI: 2 - UWI: 2 - CCIC: 1 -RaEng; 2 -SAGANA:1 -Diproinduca: 2 -IDB:3 - Atom Solutions 2 - EY & MTB: 16 - IDB: 3 - ITC: 1 - Miller Publishing 2 - BREA 1 - BNSI 1 -Fair Trading Comm. 1 - BMA 1 -PFAN: 1 	<p>R&D investments unless collateral is made available in the form of assets such as land, houses or patents.</p>		<p>mobilized and re-organized on 26 January 2021 at Newton Incubation facility in cooperation with startups including CEMBI, EcoMycö, Green Collective and Red Diamond where the purpose was to prepare and submit a 375 000 USD proposal to Compete Caribbean blue economy program by 31st January 2021. As a result of the team work, an application was successfully completed and submitted to IDB (Inter-American Development Bank) by 31 January 2021. Proposal name: Creating Value from Agricultural & Marine waste streams . 22 pages.</p> <p>The PFAN (Private Financing Advisory Network) application was submitted by GoodRidgePower amounting to \$ 800 000 by 28 Feb 2021. GoodRidge Power is currently in the process of accessing the financing according to the PFAN program.</p> <p>Moreover, the organization of investor pitching event took place at Bagnall’s Point Gallery at Pelican Village on 27t May, 2021 at 10-12 am, Bridgetown. Three (3) incubatees (BIMEV, Red Diamond, Green Collective 246) pitched their business idea for the local investors and banks. Eight (8) investors/banks participated in this pitching event including Shane Hewitt, Republic Bank, Ermine Darrox, RBC, Cameron Steinman and Khalid Grant, Blue Circle Energy, Andy Armstrong, Arms trong Industries, John Williams, Cave Shepherd, James Edghill, Edghill Associates, Barney Gibbs, Adopt a Stop, and there were eighteen (18) people registered for this event including banks, investors, startups, Bloomcluster and BIDC staff. Investments asked by startups were ranging from 350,000-500,000 BSD.</p> <p>In terms of partnerships:</p> <ul style="list-style-type: none"> - The cluster has signed a Memorandum of Understanding with the University of West Indies (UWI) and the Caribbean Climate Innovation Centre (CCIC). Both have a regional mandate and network within the Caribbean. - Regional and International partnerships
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<p>Number of regional and international conferences</p> <p>Number of conference participants</p>	<p>- Startups: 21</p> <p>Number of private investors working with the cluster (8)</p> <p>- Williams Caribbean Capital</p> <p>- Private business angels (2)</p> <p>-Diproinduca Inc (1)</p> <p>-SAGANA (1)</p> <p>-Circulate Capital (1)</p> <p>Number of banks (2):</p> <p>RBC and Republic Bank</p> <p>Jobs generated by the startups/cluster members: 21 (including founders)</p> <p>- GoodRidgePower: 3</p> <p>- ProSolar 246: 2</p> <p>- BIMEV: 2</p> <p>- SJPI e-fishing vessel project: 2</p> <p>- EcoMycö: 1</p> <p>- Green Collective: 4</p> <p>- Red Diamond: 3</p> <p>- HGFC: 1</p> <p>- OnSolar: 1</p> <p>- CEMBI: 2</p> <p>Number of publications (conference papers, blogs, books etc):4</p> <p>- ISEC 2022: International Sustainable Energy Conference 2022- 2 papers.</p> <p>- Business Barbados 2022</p> <p>- Bioisland publication.</p>		<p>established with University of West Indies (UWI), Climate KIC, the Caribbean Climate Innovation Centre CCIC, IASP (International Association of Science Parks) and TCI Network (the leading global network of people and organizations working in clusters and innovation ecosystems around the world), RaEng LIF 2022, Diproinduca and Sagana. The BloomCluster profile has been also validated by the European Cluster Collaboration Platform (https://clustercollaboration.eu)</p> <ul style="list-style-type: none"> - Cluster member meetings with circular economy SMEs (B's recycling and Diceabed). Discussion about cooperation areas and types of cluster services Bloom can provide to foster their business. Meetings were jointly organized by the Bloom team and BIDD bioeconomy team. Discussion was held with Mr. Stephen Foster, Founder of Diceabed and Paul Bynoe, Founder of B's recycling. www.bsrecyclingbarbados.com (July 2021) - Discussions with Roddy Carr, Barbados Golf Club and introduction of BGC Solar PV project (since September 2021). Discussions about cooperation possibilities relating to Cluster and PFAN financing. Currently and as result there are assessments of lay-outs and master plan prepared by Emera Caribbean. - Since Sep 2021, a solid cooperation with Royal Academy Engineering has been established (partnership facilitated by Lisa Rose, Senior Manager at RAEng https://www.raeng.org.uk/). In October 2021, there was launched the Leaders in Innovation Fellowships (LIF) programme in cooperation BIDD, Bloom and BCCI. Three incubates are part of the LIF Global Barbados (https://www.raeng.org.uk/global/sustainable-development/leaders-innovation-fellowships/lifglobal): <p style="text-align: right;">✓ Andre Murrell, Iron Charging Solutions -</p>
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		<p>2021 Number of regional and international conferences (2)</p> <p>Number of conference participants (28): - Vienna Energy Forum 2021 (12) -ISEC 2022 (14)</p>			<p>an online platform that allows owners of electric vehicle charging infrastructure to share their chargers with electric vehicle drivers.</p> <ul style="list-style-type: none"> ✓ Kerri-Ann Bovell, EcoMyco - EcoMyco manufactures biomaterials packaging for industrial manufacturing companies in an effort to eliminate plastic waste and fight the plastic crisis. ✓ Cherith Pedersen, Kayamo pads - an environmentally friendly hygiene product for women more cost effective for their budgets than ordinary pads. <p>There is envisaged the signature of a MoU.</p> <p>The Bloom also assisted in the promotion of the LIF in cooperation with BCCI, BIDC, UWI, Ministry of science, innovation and new technology. Publication of call for applications of the LIF programme at Bloom, BIDC and BCCI websites. https://www.barbadoschamberofcommerce.com/call-for-applications-for-the-lif-global-programme/</p> <ul style="list-style-type: none"> - Discussions with the Canadian Government Business Initiative (Ms.Paula Greene) on the Beyond Ventures Group https://beyondventuresgroup.com/about/ to define cooperation in conducting business and trade with startups. - Discussions with Sherry-Ann Blackett, Senior Trade and Investment Officer /Country lead of Barbados & Eastern Caribbean, Department for International Trade, British High Commission Barbados & Eastern Caribbean (since November 2021) - The Bloom Cluster together with IDB was invited to participate at the Ocean Innovation Challenge 2022, organized by UNDP. Bloom offered knowledge transfer and advice on project
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					<p>development in line with the incubator programs.</p> <ul style="list-style-type: none"> - There are discussions with USAID contractor ACDI/VOCA on cooperation with USAID funded program related to Green and Blue is land economies in the Eastern Caribbean (June, 2022). - Meetings with H2 Horizons Barbados to introduce business plan and financial needs of the Bloom Cluster incubates in order to define cooperation (June, 2022). - Furthermore, for cooperation, there were held meeting with Adam Bregu, Startup Genome, Royal Academy of Engineering LIF, RaEng, Ino-Gro Inc, Atlantic Canada Opportunities Agency (ACOA) and Government of Newfoundland's Department of Industry, Energy and Technology - There were initiated discussions with SAGANA (Patricia Garza, Investment Manager) and Circular Capital on the establishment of Circular Economy Accelerator and submissions of the startups for financial opportunities (since April 2022) - The Bloom Cluster is advising the Austral University team (Buenos Aires on cluster development). AU is working on the UNEP Policy Assessment. Advisory support for the policy assessment and sharing of our experiences in cluster development. (Since August 2021) <p>In summary, it is worth highlighting that several private investors are working with the Bloom Cluster: Williams Caribbean Capital, Private business angels, Diproinduca Inc, SAGANA, Circulate Capital, and banking facilities: RBC and Republic Bank</p> <p>Similarly, the Bloom Cluster has contributed to relevant events and publications for its higher visibility. Relevant events and contributions are listed below:</p>
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					<ul style="list-style-type: none"> - Participation at the Vienna Energy Forum 2021: Plenary Session II Enabling Environment on 5 July 2021 www.viennaenergyforum.org . The work of several startups was highlighted during the event. In addition, a video was prepared to promote entrepreneurship and innovation in Barbados, with special focus on gender equality. - Participation in the first high level GACERE meeting organized by Global Alliance on Circular Economy and Resource Efficiency (GACERE) (September, 2021) - Preparation of the project concept note for the UNIDO Gender Equality Mobilization Award 1 October 2021. Submission of the application to UNIDO: https://www.unido.org/women-levers-change-sustainable-industry-during-covid-19-and-beyond-unido-gender-equality-mobilization-award <p>Participation in the UNIDO Global Call Award Ceremony on 26 October. https://hub.unido.org/event/unido-global-call-award-ceremony-2021</p> <ul style="list-style-type: none"> - Participation in the UNCTAD 15 conference (online) 3-7 October 2021. https://unctad15.org/programme - Participation in the Barbados Sustainable Energy Conference 2021 at https://cem2021caricom.org on 22 November 2021. - Participation to Barbados and Eastern Caribbean SDG-Programme Team meeting organized by the UN Multi Country Office (MCO) in Barbados on 20 January, 2022 at 10-12 am. Presentation of Country Implementation Plans (CIPs) in the Eastern Caribbean and key outcomes and outputs provided by 15 UN agencies. The Cluster Manager was representing UNIDO as a member of SDG-PT for Barbados and Eastern Caribbean states.
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					<p>https://easterncaribbean.un.org/en/about/about-the-un</p> <ul style="list-style-type: none"> - Participation in the UN-OECS planning meeting on economic development in the Eastern Caribbean region (February, 2022). - Participation in the ISEC 2022 conference. Bloom Cluster members presented 2 papers on April 6 2022. Session 3. Renewable Energy and Circular Economy Applications towards a low-carbon industry, chaired by Mr. Martin LUGMA YR. Conference papers presented: (i) Pelagic Sargassum and food waste valorisation using hydrothermal pretreatment and anaerobic co-digestion, Dr. Terrell Thompson, the University of Auckland, NZ; and, (ii) Bio-Resource Circularity Centres for Small Island Developing States, whose authors are Ms. Kerri- Ann Bovell, Ms. Deandra Crawford, Mr. Joshua Forte, Bloom Cluster. https://aee-intec-events.at/call-for-abstracts/topics-call-for-abstracts.html <p>Finally, the Bloom Cluster has been also highlighted in relevant publications/events:</p> <ul style="list-style-type: none"> - Business Barbados 2022 (millerpublishing.net) https://millerpublishing.net/publications/2022/BB2022/64/ (pag 64). - UNIDO Annual Report 2021 https://www.unido.org/annualreport2021 (pag. 41) - UNIDO. General Conference Nineteenth session. Page 3. (December 2021)
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<p>Outcome 3.1</p> <p>Enhanced innovation and implementation capacities of sustainable energy businesses in technology areas with high GHG emission reduction and value creation potential</p>	<p>Reported accelerated implementation of SE support programs through improved private sector capacities after five (5) years</p> <p>Annual % increase in the use of domestic contractors, services and content throughout the value chain of SE investments</p> <p>Number of SE patents submitted for registration after five (5) years</p>	<p>10 standard proposals listed at QI assessment report. UNIDO report. 2022.</p> <p>1 Online training program is in operation (GN-SEC program): Online Capacity Building Program on Sustainable Energy for Islands. 12 certified participants.</p> <p>14 Certified Online Training Courses. 13 training workshops were completed with incubatees</p> <p>GoodRidge will deploy a solar pv farm amounting to 800 kUSD</p> <p>Red Diamond Compost. Prototype product testing completed.</p> <p>OnSolar, reusable battery based Solar PV system with inverter tested and completed.</p> <p>CEMBI-BiteGreen app is under development and testing.</p> <p>EcoMyco recyclable plastic to be tested at UWI Jamaica campus. Tensile strength and yield strength.</p>	<p>Slow progress of the two major SE promotion programs due to reported lack of private sector capacities</p> <p>Relatively high import dependence in some SE sectors</p> <p>Very low level of SEC patents submitted</p>	<p>Reported accelerated implementation of SE support programs through improved private sector capacities after five (5) years. Annual 3% increase in the use of domestic contractors, services and content throughout the value chain of SE investments. At least 3 SE patents submitted after five (5) years</p>	<p>It is still too early to report on the results on the outcome level in detail. However, great progress has been achieved in this component.</p> <p>A first version of the Barbados Clean Tech Quality Infrastructure (QI) Assessment report is available. It aims at providing practical recommendations on how to improve the current framework and the potential role of BLOOM regarding standard development, assurance and enforcement. Ten (10) standards for products and services were already identified: Quality Management Systems; Environmental Management Systems; Environmental Labelling and Declaration; Environmental Technology Verification; Innovation Management; Intellectual Property Management; Framework for Implementing the Principles of a Circular Economy; Service Excellence; Business Continuity Management; and, Energy Management</p> <p>The Online Capacity Building Program on Sustainable Energy for Islands is available. The implementation of this course is being carried by the Bloomin cooperation with CCREEE. At the moment, there are 12 certified participants. Furthermore, in September 2022, there is envisaged a train of trainers workshop based on the online tool to train 50 participants to gain expertise in delivering e-learning courses (25 participants) and acquiring knowledge in LMS Moodle Management (25 participants).</p> <p>There were launched and completed 14 Certified Online Training Courses. In 2022, new courses were launched with LIF, CE Accelerator, SAGANA and Ocean Innovation Challenge. Moreover, 13 training workshops were completed with incubatees.</p> <p>Incubatees are showing progress by testing products and implementation. For instance, GoodRidge will deploy a solar pv farm amounting to 800 kUSD. Furthermore, new partnerships has been established with Wello and Hydrogen Horizons Barbados.</p>
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		Green collective 246, biodiesel pilot production demonstrated. Biodiesel from cooking oil. Bioethanol produced from biowaste Small demos done.			
Output 3.1.1 Proposals for improved product, service and qualification standards and certifications are formulated (e.g. PV, solar-thermal buildings, appliances)	Number of proposals for improved product, service and qualification standards and certifications are formulated Number of qualification and certification standards in priority technology areas are adopted and their application is facilitated	10 standard proposals listed at QI assessment report. UNIDO report. 2022. Cleantech Readiness and QI assessments and policy dialogues in Barbados.. ISO and ANSI standards related to quality, Solar Energy, SWH, Solar PV, Battery Energy storage, biogas and hydrogen production and utilization.	Lack of standards and certifications for both products and persons participating in the sustainable energy industry (e.g. solar-thermal systems, PV installation). However, equipment labeling standards have been implemented and there are additional standards of related work that needs to be completed: (i) Design, installation, testing and commissioning of RE technology (ii) RE standards specific to artisans and engineers (iii) Imported RE and EE equipment. Equipment needs to be suitable for the local market (iv) Disposal of RE and EE equipment. E.g. compact fluorescent lights (CFL), batteries (v) Enforcement by regulatory agencies. E.g. Customs and Excise	At least 10 proposals for improved product, service and qualification standards and certifications are formulated. At least 5 qualification and certification standards in priority technology areas are adopted and their application is facilitated.	The assignment "For provision of services related to consulting support for clean-tech policy readiness and quality infrastructure assessments and policy dialogues in Barbados" was awarded to AtomSolutions. Its objective #5 aims to develop the Barbados Clean Tech Quality Infrastructure (QI) Assessment. It will provide an overview of the existing national quality infrastructure, actors and processes for products and services, including accreditation, certification, standards, testing, inspection, metrology, and quality management systems. Moreover, the assessment will provide practical recommendations on how to improve the current framework and the potential role of BLOOM regarding standard development, assurance and enforcement. At least ten (10) standards for products and services will be identified, which are of high priority for the local clean tech industry. Currently, a draft report of the QI assessment is available. Some highlights are summarized below: The main purpose of this CleanTech Quality Infrastructure Assessment is to provide practical recommendations on improving the current framework to reduce/eliminate the barriers and access quality infrastructure support services for the CleanTech sector. Additionally, it seeks to explore the potential role of BLOOM regarding standard development, quality infrastructure assurance and enforcement. For Barbados, the proposed CleanTech QI structure must meet, at minimum, the following criteria: - Be responsive to the demand for quality services - Awareness of the relevant international standards

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<p>for cleantech products and services that are required by customers e.g. knowledge and awareness building</p> <ul style="list-style-type: none"> - Skills, QI laboratories and resources available for companies that will help them to comply with standard requirements e.g. testing, inspection, product validation - Provide timely trade information with respect to opportunities for export market access for the sectors' products and services - Have a plan for the sustainability of the QI system. <p>The preliminary proposed Clean Tech QI for Barbados involves:</p> <ul style="list-style-type: none"> a) Fundamental Supporting Elements of Clean Tech QI <ul style="list-style-type: none"> ✓ Quality Awareness and Promotion ✓ Education, HR Training & Development ✓ Market Surveillance, Verification, and Enforcement ✓ Technical Regulations ✓ Trade Facilitation and Market Access b) Supporting QI Legislative Amendments c) Supporting QI Policy Amendments d) Implementing Amendments <ul style="list-style-type: none"> ✓ Quality Infrastructure Assessment Framework ✓ Clean Tech Quality Infrastructure Recommendations ✓ Critical Factors for Success <p>Furthermore, to commence the process of improving the quality of Clean Tech products and services to a world-class level, ten (10) priority standards have been identified. These standards range from management systems standards to product standards, to standards supporting business:</p> <ul style="list-style-type: none"> ❖ Standard 1 – Quality Management Systems <p>The world's most populous and effective quality management system is the ISO 9001 standard on</p>

					<p>Quality management systems – Requirements. It can be implemented in any size organization. Quality is an inherent trait expected by consumers globally, and the CleanTech sector would do well to give serious consideration to its implementation. The targeted stakeholders amount to 25% of the CleanTech sector that has not yet given consideration to its implementation.</p> <ul style="list-style-type: none"> ❖ Standard 2 – Environmental Management Systems ISO 14001: 2015 Environmental management systems – Requirements with guidance for use is the leading standard addressing environmental management practices that helps organisations reduce the negative impact of their operations on the environment. Conformance to ISO 14001 also satisfies SDG 11 – Sustainable cities and communities, SDG 12 – Responsible consumption and production, SDG 13 – Climate action and SDG 14 – Life below water and SDG 15 – Life on land. ❖ Standard 3 – Environmental Labelling and Declarations This standard, ISO 14021: 2016 Environmental labels and declarations – Self-declared environmental claims (Type II environmental labelling), provides the mechanism and means for CleanTech startups and entrepreneurs to compete on the global scale with the ability to issue environmental labels and make declarations regarding their product. It provides an evaluation and verification method to substantiate environmental claims made. ❖ Standard 4 – Environmental Technology Verification As environmental technology expands and improves, there is a demand for verification to illustrate that the technology does what it claims to do. The standard is ground-breaking as it allows environmental technology world wide to be given some measure of credibility. The verification requirements are given in ISO 14034: 2016 Environmental management systems – Environmental technology verification.
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<p>❖ Standard 5 – Innovation Management Innovation is one of the fundamental elements of the CleanTech sector and new and emerging sectors. Innovation provides a pathway for solving a problem in a different and distinct manner and should eventually lead to commercialization. ISO 56002: 2019 Innovation management – Innovation management systems – Guidance offers help in this regard.</p> <p>❖ Standard 6 – Intellectual Property Management Startups and entrepreneurs are always concerned with how to protect and manage their innovations to the extent that a method or process is available to help manage their intellectual property, which is the engine of competitiveness that drives growth. ISO 56005: 2020 Innovation management – Tools and methods for intellectual property management – Guidance is the standard to assist in this regard, it also assists in achieving UN SDGs 4, 8 and 9.</p> <p>❖ Standard 7 – Framework for Implementing the Principles of a Circular Economy The world has finally agreed that the concept of a circular economy needs to be ubiquitous and accelerated due to the issues of waste management, climate change and other concerning issues from the traditional linear industrial economy. And while the global community of standardizers are actively working to develop an International Standard, other countries have taken the lead in this matter. BS 8001: 2017 Framework for implementing the principles of a circular economy in organizations – Guide serves this function.</p> <p>❖ Standard 8 – Service Excellence No business can be successful without satisfied customers. Hence, serving one's customers in a manner where their experience is superior compared to one's competitors is a desired goal. ISO/TS 24082: 2021 Service excellence – Designing excellent service</p>
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					<p>to achieve outstanding customer experiences is the standard that does just that for the CleanTech sector.</p> <ul style="list-style-type: none"> ❖ Standard 9 – Business Continuity Management Planning and preparing for events that may cause business disruption is the goal of business continuity management. ISO/TS 22332: 2021 Security and resilience – Business continuity management systems – Guidelines for developing business continuity plans and procedures helps in this regard. ❖ Standard 10 – Energy Management To assist in the control and management of energy use, the ISO 50001: 2018 Energy management systems – Requirements with guidance for use was developed. Energy consumption is one of the biggest matters of concern for businesses. <p>Further details on the proposed standards are in the QI draft report that accompanies this PIR.</p>
<p>Output 3.1.2</p> <p>One (1) on-line training program on sustainable energy island solutions is developed and applied by educational institutions and experts in Barbados</p>	<p>Online-training program operational</p> <p>Number of institutions include the tool in the curricula</p> <p>Number of Barbadians have taken the online-training (at least % women participation is envisaged)</p>	<p>Online training program is in operation (GN-SEC program): Online Capacity Building Program on Sustainable Energy for Islands https://training.gn-sec.net/course/index.php?categoryid=1</p> <p>12 certified participants on the online sustainable energy for islands training tool.</p>	<p>Currently only very few island-specific training tools are available in Barbados.</p>	<p>Online-training program operational. At least 5 institutions use the tool in their curricula. At least 100 Barbadians have taken the online-training (at least 40% women participation is envisaged)</p>	<p>The Online Capacity Building Program on Sustainable Energy for Islands has been developed by UNIDO and SIDS DOCK in partnership with the CIEMAT (Spanish Centre for Research in Energy, Environment and Technology). The program has been developed by fulfilling CIEMAT’s quality criteria in terms of scientific and technical expertise, Information and Communication Technologies (ICT) tools, and methodological and pedagogical resources.</p> <p>The program includes nine online modules, which describe and analyze the following technologies and energy issues: Solar Photovoltaics, Solar Thermal and Ocean Energy technologies, Bioenergy, Energy Efficiency and Thermal Optimization in buildings, Mini-grids and Energy Storage in Insular Power Systems, E-mobility and an overview on Energy, Climate Change Mitigation and Resilience in island regions. All modules are available online in Portuguese and are free of charge (https://training.gn-sec.net/course/index.php?categoryid=1).</p>

					<p>The implementation of this course is also being supported by the CCREEE in cooperation with Bloom, and the Samuel Jackman Prescod Institute registered for this course in 2021.</p> <p>For September 2022, it is envisaged that CIEMAT provides a train of trainers workshop based on the online tool for sustainable energy on islands. The workshop will allow 25 participants to gain expertise in delivering e-learning courses. Profiles expected to participate in this training involve: Training managers and coordinators, Subject matter teachers, Learning facilitators. In addition to it, 25 additional participants with the following profile: IT staff, Training managers and coordinators, Subject matter teachers, Learning facilitators, will acquire knowledge in LMS Moodle Management.</p> <p>Both trainings will ensure the sustainability of the online training/tool based on replication. The Bloom Cluster is participating in the organization and promotion in order to ensure local participation.</p>
<p>Output 3.1.3</p> <p>At least 300 experts from various sectors are trained through national and sub-regional</p>	<p>Number of training courses launched</p> <p>Participants registered for the online training courses</p>	<p>During 2020: 12 certified online courses available in Coursera on startup financing, idea validation and business modelling. Course providers: University of Maryland, London Business School, Ecole</p>	<p>700 persons would need some kind of special training (short or long term) to be fit for the transformation to sustainable energy industry and services at the national level and in specific niche areas. There are a number</p>	<p>At least 50% of the trained trainers provide regular trainings to others either as a free-lancer or as trainer of an institution. At least 300 experts from various sectors are trained in cleantech entrepreneurship, VC financing, export marketing</p>	<p>During 2020:</p> <ul style="list-style-type: none"> - 8 stakeholders registered for the Caribbean Renewable Energy Forum 2020. 19 project stakeholders completed the online training courses. - 12 Certified training courses were completed on the online training program for sustainable energy on islands.

<p>trainings, by train-the trainer approaches and training missions</p>	<p>Certified online Training Courses completed</p> <p>Number of trainers trained in key technology areas</p> <p>Number of experts from various sectors are trained in priority technology and skill areas (at least % women participation is envisaged)</p> <p>Number of entrepreneurs (incl. cluster management) participating in training missions to international cluster/technology hubs focusing on solutions with high GHG emission reduction and value creation potential (e.g. solar-thermal, efficient buildings, climate technology) (at least % women participation is envisaged)</p>	<p>Polytechnic, University of New south Wales. 7 courses completed.</p> <p>During 2021: Number of training courses (15): completed</p> <ul style="list-style-type: none"> - Coursera (7) - ILO (International Labour Organization) (5) - GSI (Green Solutions International SKN Incorporated) (2) <p>Participants registered for the online training courses (19):</p> <ul style="list-style-type: none"> - ILO Fostering Green Business Growth (5) - ILO Management course (5) - GSI NABCEP course (2) - Coursera (5) - UNIDO online course (2) <p>Certified Online Training Courses completed (14):</p> <ul style="list-style-type: none"> - ILO (5) - GSI NABCEP(2) - Coursera (7) <p>New courses launched</p> <ul style="list-style-type: none"> - LIF 2022 1-6/2022 - CE Accelerator 2022-8-12/2022 - How to raise VC for your startup. SAGANA 3/2022 - Ocean Innovation 	<p>of educational institutions in Barbados that are involved in promotion or educational activities in sustainable energy, such as University of the West Indies (UWE), Samuel Jackman Prescod Institute of Technology (SJPI) and the Barbados Community College (BCC). However, there is a consensus that current levels do not provide the necessary expertise that will facilitate the level of technological innovation that is expected from the private sector. There will be a need for greater investment to ensure that there is an increase in the number of trained persons that can effectively participate in the private sector as well as in government and other organizations.</p>	<p>of hightech products, HRM of project teams and technology and innovation management (at least 40% women participation is envisaged). At least (five) 30 entrepreneurs (including cluster management) are participating in training missions to international cluster/technology hubs (at least 40% women participation is envisaged)</p>	<ul style="list-style-type: none"> - An online training course was carried out for the Certified Energy Practitioners: National Accreditation Board NABSEC associate course provided by GSI. 2 Solar PV startup companies joined for this course. <p>During 2021:</p> <ul style="list-style-type: none"> - The Bloom Cluster has participated in the IASP (International Labour Organization) training seminar on Science and Technology Park and Area of Innovation Management, obtaining a course certificate on Fundamentals of Science & Technology Park and Area of Innovation Management. - Added to that, in the organization of the pitching event, 3 training workshops were organized for the selected startups on 5,12 and 19 May at 10-12 am. Participants for the training workshop were the following leaders of the start ups participated: Joshua Forte, Red Diamond, Deandra Crawford, Green Collective 246, Dario Alleyne, BIMEV, and the Trainers were Akilah Phillips, Tamara Francis, Lorenzo Harewood, Modou Diagne and Cluster Manager J Aaltonen from the Bloom Cluster - Participation to the webinar on Emerging Green Marketplaces: Opportunities for EU Business in the Americas on 19 October. Webinar was organized by the European Cluster Collaboration Platform (ECCP). https://clustersalliance.eu/event-calendar/emerging-green-marketplaces-eu-business-opportunities-in-the-americas/ - Participation to the Capacity building webinar on key skills for cluster managers in times of change organized by European Cluster Collaboration Platform (ECCP) on 27 October. https://clustercollaboration.eu/content/eccps-8th-capacity-building-webinar-skills <p>During 2022:</p>
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	<p>Challenge 2022</p> <p>Number of webinars completed related to startup, business planning and cleantech policy and financing (7) Training materials delivered for the startups: 4 (in cooperation with RaEng, IDB and SAGANA)</p> <p>Number of training workshops completed: 13 - LIF training workshops for the incubatees (10) - Blue and Circular Economy webinars (2) -Bloom incubator training (1)</p> <p>Number of workshop participants: 10 - Incubation centre: 10</p> <p>2 Solar PV startups companies joined the National Accreditation Board NABSEC associate course LIF 2022 online acceleration and training program(3)</p> <p>How to raise VC for your startup 3/2022. SAGANA (14)</p> <p>CE Acceleration intro webinar SAGANA (49)</p>			<ul style="list-style-type: none"> - Participation to the LIF Global training event for the startups. Session 1. How to get the best from your training (February, 2022) - Participation to the LIF Global Session 2. Defining your customer’s problem and how to solve it (February, 2022). - Participation to the “Advancing plastic circular economy solutions in the Caribbean” organized by SAGANA, Circulate Capital and IDB (February, 2022) - Bloom-Export Barbados workshop on how to obtain rental space with Export Barbados on (February, 2022). Workshop organized by the Bloom. - Planning and organizing of training webinar on “how to raise VC for your startup” in association with Andy Armstrong, Armstrong Industries and Cesar Vergara, SAGANA. 12 participants including 8 startups.2 presentations and Q&A session with startups.March 31, 2022. - On June 2, 2022, a stakeholder webinar on Caribbean Circular Economy Acceleration program was organized in cooperation with SAGANA and IDB. 49 registered participants. The objective was to offer awareness building and marketing of CE accelerator among SMEs and corporations in Barbados. Furthermore, an E-mail marketing campaign was launched.
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		Ocean Innovation Challenge (4)			
Output 3.1.4 At least two R&D partnerships between companies of the cluster and domestic and/or international applied research institutions are created and under execution	Number of R&D partnerships on technology priorities created Number of prototypes and business ideas developed and under testing	Red Diamond Compost. Prototype product testing completed. OnSolar, reusable battery based Solar PV system with inverter tested and completed. CEMBI-BiteGreen app is under development and testing. EcoMyco recyclable plastic to be tested at UWI Jamaica campus. Tensile strength and yield strength. Green collective 246, biodiesel pilot production demonstrated. Biodiesel from cooking oil. Bioethanol produced from biowaste Small demos done. New partnership with	Lack of collaboration within competitive sectors. There is intense competition felt uncomfortable about coming together to share information and ideas and to potentially reveal important 'trade secrets' and establish cooperation and partnerships. Few companies are seeking partnerships within the region and internationally to maximize their potentials, such as Megapower and the Caribbean LED Lighting. Moreover, there are no tailored instruments to systematically promote the cooperation of companies and applied research.	2 (two) R&D partnerships on technology priorities created. At least two (2) prototypes and business ideas developed and under testing	10 new business models are available and 9 business plans were reviewed. There are also incubation agreements signed with startups with grant financing. Start ups have achieved the following results: - Red Diamond Compost. Prototype product testing completed. - OnSolar, reusable battery based Solar PV system with inverter tested and completed. - CEMBI-BiteGreen app is under development and testing. - EcoMyco recyclable plastic to be tested at UWI Jamaica campus. Tensile strength and yield strength. - Green collective 246, biodiesel pilot production demonstrated. Biodiesel from cooking oil. Bioethanol produced from biowaste Small demos done. - GoodRidgePower: PFANTA for development of bankable Solar PV farm project worth of 800 kUSD (Further details in Output 2.1.2 and 2.1.3). Furthermore, there is a new partnership with Wello a Finnish wave energy company, Pilot WE plant project

		<p>Wello a Finnish wave energy company, Pilot WE plant project in Barbados, Bloom's role mainly identification of project financing. 0,5 MW plant tested in Scotland. www.wello.eu</p> <p>Hydrogen Horizons Barbados. Portable hydrogen solutions based on metal hydride storage and PEM FC units for producing of clean electricity. Capacity 85 kWh to 1 MWh fuel cells. Assistance required: financing. BNOC</p> <p>GoodRidgePower PFANTA for development of bankable Solar PV farm project worth of 800 kUSD.</p>			<p>in Barbados, Bloom's role mainly identification of project financing. 0,5 MW plant tested in Scotland. www.wello.eu</p> <p>Moreover, Hydrogen Horizons Barbados. Portable hydrogen solutions based on metal hydride storage and PEM FC units for producing clean electricity. Capacity 85 kWh to 1 MWh fuel cells. Bloom is assisting for financing the project through BNOC</p>
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Project Component 4 - Monitoring and Evaluation

Outcome 4.1 Project's	Timely implementation of the project and		N/A	Project progress and an overall project impact assessment periodically	The mid-term review to be available in August 2022. Final evaluation is envisaged to December 2022. The implementation of activities follow a normal course
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progress towards objectives continuously monitored and evaluated	project targets and indicators properly monitored throughout the project duration			monitored and evaluated	having overcome COVID constraints. The are available 24 monthly reports and UNIDO HQ and the BloomCluster team holds regular meetings for efficient monitoring and implementation of activities.
Output 4.1.1. Project monitoring and evaluation	List of all progress reports prepared Mid-term review (optional) and terminal evaluation conducted Number of project steering committee meetings Number of dissemination materials	1 mid-term review ongoing. Expected to deliver the report in August 2022. 3 Steering committee meeting. A SC meeting to be organized for September 2022 27 Monthly reports. 1 Project implementation report 2020 and, 1 Project implementation report 2021, 1 Project Implementation report 2022 (under process)	N/A	M&E Plan ready within 3 months of project start. Mid-term review (optional). Terminal evaluation completed by end of project closing time. Project terminal report completed by end of project. At least one (1) project steering committee meeting per year. Dissemination materials ready by the end of project.	So far, three PSC meetings were organised. The fourth SC meeting is planned to September 2022. A meeting was held with PS Wayne Marshall, Ministry of Industry, Innovation and Science and Technology on 23 May 2022 to discuss the next Project Steering Committee meeting and coordinate invitation letters for the SC members. The cluster manager is providing monthly progress reports and regular meetings are being held between UNIDO, Bloom and BIDC every two weeks to discuss project progress. To ensure the long-term sustainability of the cluster, UNIDO is currently preparing the full handover of the cluster management to BIDC (now Barbados Export). Moreover, it is planned to find financial modality, which will allow the cluster to cover its operational costs at least for another year after project close through GEF grants. The MTR will be available in August 2022, an international consultant was hired for its development. A mission took place in Barbados to gather information and meet with key project stakeholders (in June 2022). One of the expected outcomes of this evaluation is to develop a report that includes the progress of the project in relation with established indicators in the GEF endorsement document, and the development of a project proposal. The final evaluation will be initiated in December 2022. TORs are under development.

III. Project Risk Management

1. Please indicate the overall project-level risks and the related risk management measures: (i) as identified in the CEO Endorsement document, and (ii) progress-to-date. Please expand the table as needed.

	(i) Risks	(i) Risk level	(i) Mitigation measures	(ii) Progress to-date	New defined risk ⁶
1	<p>Policy Risk: Due to the upcoming national elections in the first quarter of 2018 there is some risk that the new Government might change the policy towards sustainable energy and Barbados as a “green technology hub”.</p>	<i>Medium</i>	<p>The risk is relatively low as also the utility and the private sector is highly committed to the 100% renewable energy scenario of Barbados. Moreover, the high costs of energy generation will be a strong incentive for that. Since the component has a strong policy dialogue component this risk will remain low. The GEF project foresees also a cooperation with BRE which has a strong advocacy role in the public.</p>	<p>The rating was increased from “Low” to “medium”. The governmental change following the parliamentary elections in May 2018 and the fiscal crisis of the country marked a major shift of paradigm. Due to the difficult situation, the new Government had to enter into the five-year Barbados Economic Recovery and Transformation (BERT) Program with the International Monetary Fund (IMF). After 2 years debt to GDP ratio fall from 175% level to 115.9% in 2019 according to IMF. Foreign currency reserves increased from US\$400 million to US\$ 1,6 billion by March 2020 according to CBB. In the light of those figures, BERT (Barbados Economic Recovery and Transformation) Program has been very effective.</p> <p>The developments caused a number of unforeseen bottlenecks and delays for the implementation of the GEF project in 2020. After the governmental change the main counterpart Ministry – the MIICs – was split into two Ministries – the Ministry of International Business and Industry (MIBI) and the Ministry of Small Business, Entrepreneurship and Commerce (MSBEC). MIBI informed that the committed cash-contribution to the project might not be available in the full amount as planned. Added to this, there have been economic impacts related to the COVID-19 pandemic, which increased the risk of the project. The BERT was extended for 5 years. The co-financing has not been materialized at all due to the impacts of the BERT program and COVID-19 pandemic. For 2021 – 2022, the MIBI has allocated \$28,436 USD as co-financing for the project. To strengthen the local co-financing, other key partners joined the project and the Steering Committee: Ministry of Energy, Small Business and Entrepreneurship; Ministry of Innovation, Science and Smart Technology; and, Barbados Renewable Energy Association.</p> <p><i>Furthermore, “Barbados’ economic outlook for 2022 will be heavily influenced by its continued vulnerability to external shocks. Government remains committed to the fiscal discipline needed for the sustainability of its debt over the medium term. The adoption of fiscal rules designed to place the debt ratio on a sustainable path is critical to this commitment”. Although the International Monetary Fund is forecasting an increase in global economic activity of 4.4 percent, the strength of the recovery in tourism-dependent economies like Barbados will be affected by the ability of countries across the</i></p>	<input type="checkbox"/>

⁶ New risk added in reporting period. Check only if applicable.

				<i>globe to control the spread of the pandemic that has caused our economy to operate well below its potential over the past two year”.</i>	
2	Involvement Risk: Lack of interest by the public and private sectors in the platform, resulting in limited interest of local players in developing the sustainable energy value chain	<i>Medium</i>	During project design, a consultative and participatory approach has been applied; from the very beginning of the implementation, the ownership of the platform will lie with MIICS and the local key stakeholders; A proper communication strategy will be prepared and implemented with adequate resources allocated to ensure an effective and widespread communication of the platform.	<p>The interest in the cluster turns out to be higher as expected. UNIDO and the cluster manager are undertaking continued stakeholder consultations. Many Cleantech and RE entrepreneurs expressed their interest to join the incubation program.</p> <p>The Bloom cluster counts with 20 public and private members. There are established 6 partnerships with CCIC, ECCP, IAS, RaEng LIF 2022, Diproinduca, and Sagana. Furthermore, there are 13 local, regional and international agreements; and, 88 stakeholders are working with the cluster, including 8 private investors.</p> <p>Even though that, the risk stays medium since there have been several limitations because of the pandemic. Further partnerships will be materialized this year.</p>	<input type="checkbox"/>
3	Technical/Capacity risks: Lack of capacity by the national counterpart	<i>Low</i>	The project is in line with national policies and the project will be executed in close coordination with the respective Ministries and authorities;	<p>The risk remains low. An experienced international cluster manager was recruited, which is assisted by a local team provided by Export Barbados (former Barbados Investment and Development Corporation – BIDC) (e.g. deputy manager, secretarial and communication support). The Bloom Cluster is hosted by BIDC HQ and receiving full support.</p> <p>Furthermore, BIDC has delegated Mr. Terrell Thompson as responsible for the Bloom at BIDC. He and a research officer, Dario Pile, are assisting the project and ensuring close coordination of the activities of Bloom with the national counterpart.</p>	<input type="checkbox"/>
4	Management Risk: Lack of effective coordination between various project partners	<i>Low</i>	A proper coordination will be sought through the Project Steering Committee and the strategic platform. Consultation between MIICS and other GEF executing and implementing agencies has already happened during the preparation of this document.	<p>Two preparatory and inception meetings were held; one initial PSC meeting was held in April 2019. A second PSC meeting was held in September 2019. The 3rd meeting of the PSC took place in December 2020.</p> <p>The Chair, Permanent Secretary from the Ministry of International Business and Industry, thanked the representatives for their fruitful contribution to the meeting and noted that the MIBI was keenly anticipating the further collaboration of the Ministries/agencies towards the advancement of the UNIDO GEF-6 Project. Regular coordination is maintained with BIDC and MIBI.</p> <p>4TH SC meeting is planned for September 2022, and it will be chaired by Mr. Wayne Marshall, current Minister at MIBI.</p>	<input type="checkbox"/>
5	Financial Risk: Incentive and financial support systems are insufficient.	<i>Medium</i>	The capacity of financial and governmental institutions will be strengthened for the promotion of innovation and added value creation. Grant instruments will be developed and applied to ensure availability of financing resources.	<p>The risk was increased to “medium”. The combined impact of the fiscal and COVID-19 crisis has made it more difficult to attract private capital and risk financing to new business ventures.</p> <p>However, the satisfactory coordination of the project has produced that several incubators commit funds to the implementation of the project. Furthermore, the Bloom has established 6 partnerships with strategic partners such as CCIC, ECCP, IAS, RaEng LIF 2022, Diproinduca, and</p>	<input type="checkbox"/>

				<p>Sagana. Furthermore, there are 13 local, regional and international agreements; and, 88 stakeholders working with the cluster, including 8 private investors.</p> <p>Moreover, forecasted sales of the startups arise to 3.65 MUSD.</p>	
6	<p>Climate Change Risk: Negative impacts of climate change</p>	Low	<p>The potential impact of extreme weather events on the industry-cluster and business models will be studied case by case and capacity will be built around climate resilient technologies. It shall be ensured that developed technology innovations shall be resilient to climate change impacts (e.g. disasters).</p>	<p>The risk was reduced to “low”. Business plans of start ups incorporates technologies and measures to reduce climate impact.</p>	
7	<p>Gender Risk: Resistance against or lack of interest in, the project activities from stakeholders, especially with regard to the active promotion of gender equality. Low participation rates of suitable female candidates due to lack of interest, inadequate project activity or missing qualified female population within the i.e. engineering sector.</p>	Low	<p>This Project will pursue thorough and gender responsive communication and ensure stakeholder involvement at all levels, with special regard to involving women and men, as well as CSOs and NGOs promoting GEEW.</p>	<p>The risk remains low. 40% of startups part of the Bloom Cluster incubator are led by women. (e.g Kerri-Ann Bovell, and CEMBI - The Caribbean Environmental Management Bureau -). Furthermore, several activities of the project ensure women's participation for guaranteeing an appropriate and equal environment in the entrepreneurship ecosystem. For instance, in public private clean tech dialogues, there was an average participation of women in 49% as attendees, and 41% as speakers.</p> <p>Furthermore, the Bloom submitted a proposal for the UNIDO Gender Equality Mobilization Award (October 2021). Submission of the application to UNIDO: https://www.unido.org/women-levers-change-sustainable-industry-during-covid-19-and-beyond-unido-gender-equality-mobilization-award</p> <p>The project is highly committed to promoting and advocating for gender equality at national and international level.</p>	<input type="checkbox"/>
8	<p>Sustainability Risk: There is risk that the cluster cannot be sustained after the closure of the GEF project. The same might happen regarding the envisaged financing facility.</p>	Medium	<p>The project builds on strong ownership of the counterpart. The execution of the cluster-component by BIDD as well as the high co-financing contribution of BIDD and the Government will ensure that the cluster will continue to operate after the closure of the project. Moreover, the cluster will start to generate its own revenues during the life-cycle of the GEF projects. The receipt of funding from the facility is linked to a membership in the cluster – that will strengthen the membership base of the cluster from the very beginning. Moreover, the cluster will contribute to the sustainability of the funding operations of the facility, since the supported entrepreneurs will get access to other services (e.g. incubation, cooperation with other companies).</p>	<p>UNIDO works closely with BIDD on the operationalization of the Cluster. UNIDO and BIDD finalized the subcontracting arrangement in November 2019. The cluster also finalized its Business Plan which will address the long-term sustainability of the Cluster through project financing, service and membership fees.</p> <p>Business Plan was jointly signed by the Cluster Manager and the former CEO Sonja Trotman, BIDD. The internationally recruited cluster manager is strengthening the capacities of the local team. Furthermore, the Bloom Cluster team is hosted since May 2021 in BIDD HQ since this project has become a national priority to boost business ideas and industry development.</p> <p>Regarding start ups, there are defined 10 business models and they are working on finalizing business plans for sustainability. There are regular assistance and advisory services provided from the Bloom to the start ups.</p> <p>UNIDO is also affiliating the cluster with other ongoing and starting innovation initiatives (e.g. IDB national innovation centres, Caribbean Climate Innovation Centre, and recently, the Green Tech Cluster). Apart from that, the study tour will take place in September 2022 in order to reinforce local capacities and learn from</p>	<input type="checkbox"/>

				<p>international experiences for strengthening local business and plans.</p> <p>Finally, it is envisaged the GEF project provides a sustainability fund to BIDC in order to continue the operations of the Bloom beyond project duration.</p>	
9	<p>Impact of COVID-19 crisis Project delays due to supply-chain interruptions, economic downturn and lock-downs</p>	Medium	<p>The COVID-19 crisis continues to have severe impacts on Barbados due to health emergencies, supply-chain interruptions, lockdowns (incl. flights) and economic downturn. Due to social distancing and home-office requirements, the GEF project has had to keep postponing envisaged activities, such as study tours to next year. In July 2020 CAF, the Development Bank of Latin America approved US\$100 million loan to support government's fiscal management to mitigate effects of COVID-19 on the economic, financial and social sectors.</p> <p>According to CEPAL (Economic Commission for Latin America and the Caribbean), in Barbados, the pandemic has resulted in a fiscal deficit of 0.2% of GDP by September 2020 and gross public debt expanded by 8.5 percentage points to 131% of GDP in the same month. The recent European Union blacklisting could affect the international business sector. Unemployment claims have reached over 33,000 claims in June 2020. The twelve-month moving average rate of inflation stood at 4.0% at the end of September 2020 owing to new taxes and a tough drought season early in the year, but deflation is expected in 2021. The tourism sector has been severely impacted. However, the economy is expected to recover in 2021 with forecast growth of around 6%, with the arrival of a vaccine and a gradual increase in tourism activity.</p> <p>Further financial implications on the project due to decreasing public revenues (e.g. touristic downturn) and foreign direct investments in cleantech businesses and R&D might further impact the cluster operations.</p>	<p>In 2021, the GEF project started a double modality, shifting between home office and office work, holding online meetings. Because of COVID-19 limitations, the project was extended for one year. The study tour to Europe was postponed several times.</p> <p>Currently, in Barbados, the COVID restrictions were minimized. The study tour to Europe is taking place in September 2022. International consultants have had the opportunity to do missions for gathering information and meeting with key stakeholders of the project. Face to face meetings are held again.</p> <p>The Bloom cluster is showing satisfactory results and the implementation of activities is back to normality. There are available a readiness clean tech framework and the first versions of a tracking framework and QI report.</p>	<input checked="" type="checkbox"/>

2. If the project received a **sub-optimal risk rating (H, S)** in the previous reporting period, please state the **actions taken** since then to mitigate the relevant risks and improve the related risk rating. Please also elaborate on reasons that may have impeded any of the sub-optimal risk ratings from improving in the current reporting cycle; please indicate actions planned for the next reporting cycle to remediate this.

Not applicable

3. Please indicate any implication of the **COVID-19** pandemic on the progress of the project.

The COVID-19 crisis has impacted the project implementation moderately. A new risk was added (see above). Apart from immediate project delays, there have been long-term impacts due to decreasing public revenues (e.g. touristic downturn) and foreign direct investments in cleantech businesses and R&D. Therefore, it was decided to extend the project for one year (up to June 2023).

However, currently, the implementation of activities is back to normality and the project is showing good results. The project will be closed in June 2023. A sustainability fund will be created to ensure operations of the Bloom beyond project duration at BIDC (Export Barbados, national counterpart).

4. Please clarify if the project is facing delays and is expected to request an **extension**.

The project was already extended to June 2023. Currently, there is no need for an extension.

UNIDO is ready to replicate the BLOOM model with GEF support in other lower income countries, including least developed countries (LDCs) and SIDS. Under the global platform of the Global Network of Regional Sustainable Energy Centres (GN-SEC) program, UNIDO has launched the Regional BLOOM Cluster Program, which will replicate the BLOOM approach particularly in LDCs and SIDS. Further information is available here: <https://www.gn-sec.net/content/bloom-regional-program>.

5. Please provide the **main findings and recommendations of completed MTR**, and elaborate on any actions taken towards the recommendations included in the report.

NA. MTR will be available in August 2022.

IV. Environmental and Social Safeguards (ESS)

1. As part of the requirements for **projects from GEF-6 onwards**, and based on the screening as per the UNIDO Environmental and Social Safeguards Policies and Procedures (ESSPP), which category is the project?

Category A project

Category B project

Category C project

(By selecting Category C, I confirm that the E&S risks of the project have not escalated to Category A or B).

	E&S risk	Mitigation measures undertaken during the reporting period	Monitoring methods and procedures used in the reporting period
(i) Risks identified in ESMP at time of CEO Endorsement	During the project preparation period (PPG) it has been concluded that no construction will take place, therefore, no environmental risks are foreseen at this	No special actions were required at this stage.	The BLOOM cluster hub was established without major infrastructure works. Currently, the Bloom is hosted by the BIDC HQ (since May 2021). BIDC is providing fully support to the Bloom, also designating Mr. Terrell Thompson as Bloom Cluster

	stage.		Coordinator at BIDC. Furthermore, Mr. Dario Pile, research officer at BIDC, is cooperating with Bloom.
(ii) New risks identified during project implementation (if not applicable, please insert 'NA' in each box)	N/A	N/A	N/A

V. Stakeholder Engagement

1. Using the previous reporting period as a basis, please provide information on progress, challenges and outcomes regarding engagement of stakeholders in the project (based on the Stakeholder Engagement Plan or equivalent document submitted at CEO Endorsement/Approval).

The BLOOM Barbados Cleantech Cluster is a sustainable energy and climate technology (cleantech) cluster hosted by Export Barbados (former Barbados Investment and Development Corporation (BIDC)). It was established in partnership with the Ministry of International Business and Industry (MIBI) and technical assistance by the United Nations Industrial Development Organization (UNIDO). The cluster website is available at: www.bloomcluster.com.

Currently, the Bloom Cluster counts with a Cluster Business Plan 2020-2024 that includes the Strategy, Vision, Objectives and Goals, and key milestones (incl. the communication plan) (February 2020). 11 companies have become part of the Bloom Cluster hub: (i) Good Ridge Power-Solar PV Consulting; (ii) ProSolar 246 Inc; (iii) BIMEV Rental Services Inc; (iv) SJPI- Solar Powered e-Vessel Project; (v) EcoMycö; (vi) Green Collective; (vii) Red Diamond Compost – Green agrochemicals; (viii) HGFC (Healing Grove Container Farm-Climate Resilient Agriculture); (ix) OnSolar Solutions Inc; (x) CEMBI (Caribbean Environmental Management Bureau); and, (xi) Iron Charging Solutions. In light of this, 10 business models and 9 business plans were completed in cooperation with Bloom Cleantech Cluster members.

BIDC has taken full ownership of the BLOOM Cleantech Cluster and is providing key administrative, financial management, and technical support. Mr. Terrell Thompson was designated as Bloom Cluster Coordinator at BIDC, and Mr. Dario Pile, Research Officer at the counterpart, is providing regular support to the Bloom team.

During the project period, more than 60 stakeholders were consulted. Stakeholders represented private sector business owners, CEOs, general managers, consultants, donor agencies, NGOs, business associations, university and government staff working on renewable energy and green economy sector in Barbados. 88 stakeholders are working with the clusters; 13 local, regional and international agreements have been signed, and 8 private investors are working with the Bloom.

To fully operationalize a clean tech platform under the framework of the Bloom Cluster, there is available a Clean-tech readiness, and quality infrastructure assessment and policy dialogues were conducted. Their objective is to present a potential platform to address the challenges faced by stakeholders, like weak stakeholder relationships and unsustainable communication as well as lack of trust. The platform counts with a strategy, structure, requirements in terms of administration, contributions and responsibilities of stakeholders and human capacities, and functionality. BLOOM is best positioned to play a centralized role on the platform. For outlining this, surveys and a validation meeting (on October 31th 2021) were held.

Consequently to the CleanTech Platform, three events were developed focusing on: Circular Economy, Emerging Technologies, and Enabling Technologies to discuss legal and regulatory framework, policies and incentives, development experiences, customer benefits, commercialization, and networking opportunities. Attendees included

over 60 participants from academia, Government ministries and agencies, regulatory and standards institutions, funders, Renewable Energy companies, ICT companies, professional and business associations. The dialogues included speakers from the Inter-American Development Bank, International Trade Centre, European Union, University of the West Indies (UWI), CARICOM, Caribbean Export Development Agency, Government Ministries, Barbados National Oil Company, Barbados Chamber of Commerce, Barbados Fair Trading Commission, and entrepreneurs.

Furthermore, there is available the Barbados Clean Tech Policy Readiness Assessment. For its development, it was necessary to consult and establish partnerships with stakeholders including policymakers, regulators, and firms (e.g. InKTech, Solar Energy Innovations, Future Energy Caribbean, Adaptive Intelligent Solutions, Care Point, Barbados Agriculture Society, Barbados Manufacturing Association, Barbados Contractors and Artisans Cooperative Society, Fair Trade Commission, among others). Similar processes are being conducted for the finalization of the Barbados Clean Tech Tracking Framework and Assessment and the Barbados Clean Tech Quality Infrastructure (QI) Assessment, which will reinforce the key alliances of the Bloom.

Apart from that, the Bloom Cluster team has consulted several regional and international organizations in renewable energy, EE (energy efficiency), start-up, and innovation development sector. There are established regional and international partnerships with different stakeholders. For instance, the cluster has signed a Memorandum of Understanding with the University of West Indies (UWI) and the Caribbean Climate Innovation Centre (CCIC). Both have a regional mandate and network within the Caribbean. And, alliances with the University of West Indies (UWI), Climate KIC, the Caribbean Climate Innovation Centre CCIC, IASP (International Association of Science Parks) and TCI Network (the leading global network of people and organizations working in clusters and innovation ecosystems around the world), RaEng LIF 2022, Diproinduca and Sagana. Furthermore, the Bloom Cluster profile has been also validated by the European Cluster Collaboration Platform (<https://clustercollaboration.eu>)

Moreover, a first study tour took place in Colombia on April 22-26, 2022 under the organization of LIF 2022 global program in partnership with the Bloom Cluster. Of this event named: Introduction of Plastic X circularity program by SAGANA, LIF 2022 Global program progress and Colombia trip, 2 startup entrepreneurs from Barbados were attending. They are Ms. Cherith Pedersen and Mr. Andre Murrell from Iron Charging Solutions. The purpose of the in-country workshop was to practice pitching with LIF 2022 program cohort in Colombia and to refine the business model in cooperation with other participants, mentors and coaches. In the same line, a second study tour is being organized in partnership with UNIDO and Green Tech Cluster. The study tour is envisaged for 3-13 Sept. 2022. The study tour will also take place in parallel to the GN-SEC meeting in Vienna. The Barbadian representatives and the Bloom Cluster team will participate of this meeting with individual sessions with potential partners and GN-SEC centres for replication of the project. There will be 14 attendees with 36% of women participation among incubatees and government representatives.

Two (2) proposals amounting to \$ 375 000 USD per each were submitted to the IDB funded Compete Caribbean program in Jan 2020 and Jan 2021, respectively. 1 PFAN proposal submitted in Feb 2021 amounting to \$ 600 000 USD and 4 women led startups were involved. Additionally, the committed amount of grant financing for cluster members is 108 000 USD (GEF SGP grant program, UNDP Blue lab accelerator, UNIDO-GEF financing). As results, the Goodridge Power's (Bloom pre-incubatee) RE generation programme was selected into the PFAN project pipeline. Moreover, other projects ideas are under development with international consultants, e.g. "Unlocking the Caribbean market potential of seaweed and macroalgae for productive uses, coastal protection, energy and climate resilience". This concept project will be submitted to GEF8 and implemented in cooperation with CCREEE, SIDS DOCK and CARICOM.

In terms of capacity building, the Online Capacity Building Program on Sustainable Energy for Islands has been developed by UNIDO and SIDS DOCK in partnership with the CIEMAT (Spanish Centre for Research in Energy, Environment and Technology) (<https://training.gn-sec.net/course/index.php?categoryid=1>). The implementation of this course is also being supported by the CCREEE in cooperation with Bloom. There are 12 certified participants, and it is envisaged a train of trainers workshop to train 50 participants on learning and LMS modules linked to the online tool. On the other hand, several trainings and workshops have been organized for capacity building. Among the recent are, the LIF Global training event for the startups, the Advancing plastic circular economy solutions in the Caribbean, and the "how to raise VC for your startup" in association with Andy Armstrong, Armstrong Industries and Cesar Vergara, SAGANA.

Finally, the 4th SC meeting is envisaged for September 2022 and will be chair by Mr. Marshall, current Minister at MIBI. It will be proposed the creation of a sustainability fund for the Bloom, which will be operated by BDC in order to ensure operationalization of the Cluster beyond GEF project duration. MTR is expected to be available in August 2022.

2. Please provide any feedback submitted by national counterparts, GEF OFF, co-financiers, and other partners/stakeholders of the project (e.g. private sector, CSOs, NGOs, etc.).

So far the project has received good feedback from local counterparts and international partners. The innovative character is appreciated. Within CARICOM the BLOOM Cleantech Cluster is the first of its kind. The Bloom Cluster is becoming a national priority project thanks to the support of BDC and the valuable results, this initiative in the centre of helping the country to recover from the COVID crisis and impacts on an economy dependent on tourism. Furthermore, the high interest in working with the Bloom Cluster has result in a number of 88 stakeholders, being among them, IDB, SAGANA, PFAN, BREA, BNSIE, RaEng, ITC, this also include cooperation with 8 private investors.

3. Please provide any **relevant stakeholder consultation** documents.

- 9648_Cluster website www.bloomcluster.com
- 9648_Barbados Sustainable Energy Industry Market Assessment Report.
- 9648_Cluster Business Plan 2020-2024. February 2020.
- 9648_3rd Project Steering Committee Presentation. December 10, 2020
- 9648_Note of the Third Project Steering Committee meeting. December 10, 2020
- 9648_Partnership Agreement Climate Launchpad 2021. February 2021
- 9648_MIBI's letter – Estimated budget allocation 2021-2022. March 24, 2021.
- 9648_Ministry of Environment and National Beautification. Project letter extension. June 14, 2021.
- 9648_Contract No. 3000090329 for the provision of services related to consulting support for clean-tech readiness and quality infrastructure assessments and policy dialogues in Barbados. June 4, 2021.
- 9648_JD_Mid-term project review (MTR)
- 9648_Contract No. 3000093223 for the provision of services related to Development of Clean Tech Industry Report and Tracking Framework for Barbados
- 9648_Bloom Cluster_Hand over plan
- 9648_Conceptualization of the Clean Tech Industry Platform. November 2021
- 9648_Dialogue report on the Clean Tech platform. February 2022
- 9648_Press releases: Circular economy. February 2021
- 9648_Press releases: emerging technologies. February 2021
- 9648_Press releases: enabling technologies. February 2021
- 9648_Clean tech readiness assessment. May 2022
- 9648_Clean Tech Tracking framework and assessment report (draft version). April 2022
- 9648_Clean Tech quality infrastructure assessment (draft version). July 2022
- 9648_Start ups profile ppt.
- 9648_Start ups business plans
- 9648_Start ups business models (draft versions)
- 9648_Study tour aid memory (draft version).

VI. Gender Mainstreaming

1. Using the previous reporting period as a basis, please report on the **progress** achieved on **implementing gender-responsive measures** and **using gender-sensitive indicators**, as documented at CEO Endorsement/Approval (in the project results framework, gender action plan or equivalent).

40% of incubates are represented and led by women, such as Good Ridge Power, EcoMycö, BIMEV Rental Services Inc, and CEMBI (Caribbean Environmental Management Bureau).

Furthermore, the three Public-Private Cleantech dialogues to build a country tech vision count with a participation of 60, where women were represented at 49% as attendees, and 41% as speakers.

For proposals submission to PFAN, the Bloom ensure the participation of 4 incubees led by women. Furthermore, the development of the new project proposal in cooperation with CCREEE: “Unlocking the Caribbean market potential of seaweed and macroalgae for productive uses, coastal protection, energy and climate resilience”, will have an startup as advisor, the Green Collective, whose CEO is Ms. Deandra Crawford. She has implemented two champion projects on harnessing algae/sargassum for biomass/biodiesel production. This project will also aim to reduce social and economic impact from a gender perspective since women are being more impacted in terms of jobs and lack of professional opportunities.

For the study tour to Europe (September 2022), there will be 14 attendees with 36% of women participation among incubatees and government representatives

The Bloom Cluster project is highly committed with promoting and advocating for gender equality at national and international level. The Bloom submitted a project concept note for the UNIDO Gender Equality Mobilization Award 1 (October 2021) <https://www.unido.org/women-levers-change-sustainable-industry-during-covid-19-and-beyond-unido-gender-equality-mobilization-award>.

The Bloom participated to the UNIDO Global Call Award Ceremony on the gender dimension on 26 October, 2021. <https://hub.unido.org/event/unido-global-call-award-ceremony-2021>

VII. Knowledge Management

1. Using the previous reporting period as a basis, please elaborate on any **knowledge management activities / products**, as documented at CEO Endorsement / Approval.

The cluster team completed a comprehensive strategy and business plan work in association with BIDC. The Cluster Business Plan is available. The BIDC marketing and communication team assisted the cluster in designing the cluster website. A Norwegian cluster development and consulting company assisted the cluster team in the development of the entrepreneurship cluster model and capital strategy for the start-ups as a part of the global cluster leadership training program.

10 business models and 9 business plans were completed in cooperation with Bloom Cleantech Cluster members.

Furthermore, there are available:

- The Clean Tech Industry conceptualization. Its objective is to present a potential platform to address the challenges faced by stakeholders, like weak stakeholder relationships and unsustainable communication as well as lack of trust. This is accompanied by three dialogues reports on Circular Economy, Emerging Technologies, and Enabling Technologies.
- The Barbados Clean Tech Policy Readiness Assessment, which aimed to: (i) Identify gaps and make at least thirty (30) concrete proposals on how to better incentivize the participation of the local industry in clean tech manufacturing and servicing value chains; (ii) Shed light on how clean tech products and services can be better promoted through cross-cutting policies; and, (iii) Support BLOOM in the further detailing of ten (10) policy and/or legal proposals, which will be brought to the attention of relevant policy and decision-makers for consideration.

- The Barbados Clean Tech Quality Infrastructure (QI) Assessment (draft version) to provide practical recommendations on improving the current framework to reduce/eliminate the barriers and access quality infrastructure support services for the Clean Tech sector.
- The Barbados Clean Tech Tracking Framework and Assessment (draft version) to create a national clean tech vision. The Framework is based on the following 2 main axes: a) Clean Tech Innovation Public Policy - Government strategies, policies, and enabling conditions (quali-quantitative data); and b) Clean Tech Innovation Outcome - Clean Tech investments, startups/scaleups, density, etc. (quantitative data).

An article has been prepared “Cleantech entrepreneurs diving a green recovery in Barbados” for publication on the GEF webpage and media (it is available online); and the Cluster Manager has contributed with the case study of Barbados to the book: “Cluster Business Models- Exploring Business Models in Global Innovation Clusters”, whose publisher is Strategy Tools. The book contribution is pending publication.

There are additional contributions to the UNIDO Annual Report 2021 -pag.41- (<https://www.unido.org/annualreport2021>); and, Business Barbados 2022 (millerpublishing.net) pag. 64

UNIDO is ready to replicate the BLOOM model with GEF support in other lower income countries, including least developed countries (LDCs) and SIDS. Under the global platform of the Global Network of Regional Sustainable Energy Centres (GN-SEC) program, UNIDO has launched the Regional BLOOM Cluster Program, which will replicate the BLOOM approach particularly in LDCs and SIDS. Further information is available here: <https://www.gn-sec.net/content/bloom-regional-program>.

2. Please list any relevant knowledge management mechanisms/ tools that the project has generated.

The Cluster Business Plan (including cluster strategy, vision and mission statements) was published in cooperation with BIDD in February 2020. The Bloom Cleantech Cluster website is available at: www.bloomcluster.com. The Bloom Cluster is utilizing modern cluster strategy tools developed by a Norwegian cluster development organization. www.strategytools.io. Based on this, the Bloom Cluster has established close cooperation between entrepreneurs, investors, corporations, government and academics that will create added value for the local economy.

- 9648_Cluster website www.bloomcluster.com
- 9648_Cluster Business Plan 2020-2024. February 2020.
- 9648_3rd Project Steering Committee Presentation. December 10, 2020
- 9648_ Article “Cleantech entrepreneurs diving a green recovery in Barbados”
- 9648_ Article “Towards A green recovery”
- 9648_ Draft of the cluster contribution to the book: “Cluster Business Models- Exploring Business Models in Global Innovation Clusters”
- 9648_ Conceptualization of the Clean Tech Industry Platform. November 2021
- 9648_ Dialogue report on the Clean Tech platform. February 2022
- 9648_ Press releases: Circular economy. February 2021
- 9648_ Press releases: emerging technologies. February 2021
- 9648_ Press releases: enabling technologies. February 2021
- 9648_ Clean tech readiness assessment. May 2022
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- 9648_ Start ups profile ppt.
- 9648_ Start ups business plans
- 9648_ Start ups business models (draft versions)

VIII. Implementation progress

1. Using the previous reporting period as a basis, please provide information on **progress, challenges and outcomes achieved/observed** with regards to project implementation.

a. Achievements:

The Bloom Cluster was officially launched on 31st January 2020 in cooperation with BIDD senior management and local media. The Cluster Manager has established the policies and services packages of the cluster and has kick-started its operations. The Cluster Business Plan 2020-2024 was completed in February 2020 and was jointly signed between the Cluster and BIDD. The Bloom Cluster is led by an experienced international cluster manager, assisted by a Deputy Manager, 2 Project Officers, 1 Project Accountant, and 1 Administrative Assistant. The project counts on the support of a National Project Coordinator from the MIBI, a Bloom Coordinator and Research Officer at BIDD, with the support of UNIDO. Total Bloom staffing is now 10 people including GEF-6 project manager and Cluster Manager.

The GEF project received acknowledgement by the Government, which identified the clean tech sector as an important pillar of its COVID-19 recovery and economic diversification strategy. In 2021, the new management of BIDD announced to make BLOOM an important pillar of the new national export strategy.

Despite delays related to the COVID-19 pandemic, the Barbados CleanTech Cluster (BLOOM) is progressing well.

Currently, the Bloom Cluster counts with a Cluster Business Plan 2020-2024 that includes the Strategy, Vision, Objectives and Goals, and key milestones (incl. the communication plan) (February 2020). 11 companies have become part of the Bloom Cluster hub: (i) Good Ridge Power-Solar PV Consulting; (ii) ProSolar 246 Inc; (iii) BIMEV Rental Services Inc; (iv) SJPI - Solar Powered e-Vessel Project; (v) EcoMycö; (vi) Green Collective; (vii) Red Diamond Compost – Green agrochemicals; (viii) HGFC (Healing Grove Container Farm-Climate Resilient Agriculture); (ix) OnSolar Solutions Inc; (x) CEMBI (Caribbean Environmental Management Bureau); and, (xi) Iron Charging Solutions. In light of this, 10 business models and 9 business plans were completed in cooperation with Bloom Cleantech Cluster members (two additional calls were organized in 2021).

Furthermore, BIDD has taken full ownership of the BLOOM Cleantech Cluster and is providing key administrative, financial management, and technical support. The Bloom Cluster is hosted by the BIDD HQ. Currently, the Bloom is coordinating the GEF project with a Bloom Coordinator and Research Officer at BIDD.

To fully operationalize a clean tech platform under the framework of the Bloom Cluster, there is available a Clean-tech readiness and quality infrastructure assessment and policy dialogues were conducted. Its objective is to present a potential platform to address the challenges faced by stakeholders, like weak stakeholder relationships and unsustainable communication as well as lack of trust. The platform counts with a strategy, structure, requirements in terms of administration, contributions and responsibilities of stakeholders and human capacities, and functionality. BLOOM is best positioned to play a centralized role on the platform. For outlining this, surveys and a validation meeting (on October 31st 2021) were held.

Consequently to the CleanTech Platform, three events termed dialogues were developed focusing on: Circular Economy, Emerging Technologies, and Enabling Technologies to discuss legal and regulatory framework, policies and incentives, development experiences, customer benefits, commercialization, and networking opportunities. Attendees included over 60 participants from academia, Government ministries and agencies, regulatory and standards institutions, funders, Renewable Energy companies, ICT companies, professional and business associations. The dialogues included speakers from the Inter-American Development Bank, International Trade Centre, European Union, University of the West Indies (UWI), CARICOM, Caribbean Export Development Agency, Government Ministries, Barbados National Oil Company, Barbados Chamber of Commerce, Barbados Fair Trading Commission, and entrepreneurs.

Furthermore, there is available the Barbados Clean Tech Policy Readiness Assessment, which aimed to: (i) Identify gaps and make at least thirty (30) concrete proposals (see section II, Output I.1.4) on how to better incentivize the participation of the local industry in clean tech manufacturing and servicing value chains; (ii) Shed light on how clean tech products and services can be better promoted through cross-cutting policies; and, (iii) Support BLOOM in the further detailing of ten (10) policy and/or legal proposals, which will be brought to the attention of relevant

policy and decision-makers for consideration. This report highlighted that *“Barbados lacks a robust policy environment for the CleanTech industry. The progress made so far has been largely led by the private sector with delayed support by the public sector. Since the private sector does not make policy, the development of parts of the CleanTech industry has been ad-hoc even though with some success”*.

Moreover, there is available a draft version of the Barbados Clean Tech Tracking Framework and Assessment. Its main objective is to derive practical recommendations on how to improve the current framework, eliminate barriers and access quality infrastructure services as well as explore the potential role of BLOOM regarding standards development, quality infrastructure assurance and enforcement. The Framework is based on the following 2 main axes: a) Clean Tech Innovation Public Policy - Government strategies, policies, and enabling conditions (qualitative data); and b) Clean Tech Innovation Outcome - Clean Tech investments, startups/scaleups, density, etc. (quantitative data).

Finally, there is available the Barbados Clean Tech Quality Infrastructure (QI) Assessment (draft version). It aims at providing practical recommendations on improving the current framework to reduce/eliminate the barriers and access quality infrastructure support services for the CleanTech sector. Additionally, it seeks to explore the potential role of BLOOM regarding standard development, quality infrastructure assurance and enforcement. It involves recommendations to: a) Fundamental Supporting Elements of CleanTech QI; b) Supporting QI Legislative Amendments; c) Supporting QI Policy Amendments; and d) Implementing Amendments.

Apart from that, the BloomCluster team has consulted several regional and international organizations in renewable energy, EE (energy efficiency), start-up, and innovation development sector. There are established regional and international partnerships with different stakeholders. For instance, the cluster has signed a Memorandum of Understanding with the University of West Indies (UWI) and the Caribbean Climate Innovation Centre (CCIC). Both have a regional mandate and network within the Caribbean. And, alliances with the University of West Indies (UWI), Climate KIC, the Caribbean Climate Innovation Centre CCIC, IASP (International Association of Science Parks) and TCI Network (the leading global network of people and organizations working in clusters and innovation ecosystems around the world), RaEng LIF 2022, Diproinduca and Sagana. Furthermore, the BloomCluster profile has been also validated by the European Cluster Collaboration Platform (<https://clustercollaboration.eu>)

Moreover, the BloomCluster team has consulted several regional and international organizations in renewable energy, EE (energy efficiency), start-up, and innovation development sector. There are established regional and international partnerships with different stakeholders. For instance, the cluster has signed a Memorandum of Understanding with the University of West Indies (UWI) and the Caribbean Climate Innovation Centre (CCIC). Both have a regional mandate and network within the Caribbean. And, alliances with the University of West Indies (UWI), Climate KIC, the Caribbean Climate Innovation Centre CCIC, IASP (International Association of Science Parks) and TCI Network (the leading global network of people and organizations working in clusters and innovation ecosystems around the world), RaEng LIF 2022, Diproinduca and Sagana. Furthermore, the BloomCluster profile has been also validated by the European Cluster Collaboration Platform (<https://clustercollaboration.eu>).

A first study tour took place in Colombia in cooperation with LIF 2022. Three start ups participated of the program. Currently, a second study tour is being organized and will take place in parallel to the 5th GNSEC meeting in Vienna, to then, carry out visits to other key clean tech clusters in Europe (Austria, Denmark, and Sweden). There will be 14 attendees with 36% of women participation among incubatees and government representatives.

Two project proposals were submitted to PFAN for leveraging funds. Goodridge Power's has passed to the next phase, and it is in the process of accessing to the funds for financing the implementation of a solar PV farm, amounting to 800kUSD. Similarly, two other project concepts will be developed by an international consultant and Global Factor, respectively. The second one has already identified a project idea to be developed in cooperation with CCREEE that aims at reducing economic and social impact of sargassum invasion: Unlocking the Caribbean market potential of seaweed and macroalgae for productive uses, coastal protection, energy and climate resilience. This initiative is expected to be submitted to GEF 8.

As far as capacity building, the Online Capacity Building Program on Sustainable Energy for Islands has been developed by UNIDO and SIDS DOCK in partnership with the CIEMAT (Spanish Centre for Research in Energy, Environment and Technology) (<https://training.gn-sec.net/course/index.php?categoryid=1>). The implementation of this course is also being supported by the CCREEE in cooperation with Bloom. There are 12 certified participants, and it is envisaged a train of trainers workshop to train 50 participants on learning and LMS modules linked to the online tool. On the other hand, several trainings and workshops have been organized for capacity building. Among

the recent are, the LIF Global training event for the startups, the Advancing plastic circular economy solutions in the Caribbean, and the “how to raise VC for your startup” in association with Andy Armstrong, Armstrong Industries and Cesar Vergara, SAGANA.

Finally, the MTR will be available in August 2022. The 4th SC meeting is envisaged for September 2022, and the final evaluation will take place in December 2022.

UNIDO is ready to replicate the BLOOM model with GEF support in other lower income countries, including least developed countries (LDCs) and SIDS. Under the global platform of the Global Network of Regional Sustainable Energy Centres (GN-SEC) program, UNIDO has launched the Regional BLOOM Cluster Program, which will replicate the BLOOM approach particularly in LDCs and SIDS. Further information is available here: <https://www.gn-sec.net/content/bloom-regional-program>.

b. Bottlenecks:

Fiscal crisis of Barbados and the global COVID-19 epidemic have impacted the project implementation, causing delays of some envisaged activities (especially during 2020 and the first half of 2021). The governmental change following the parliamentary elections in May 2018 and the fiscal crisis of the country marked a major shift of paradigm. Due to the difficult situation, the new Government had to enter into the five-year Barbados Economic Recovery and Transformation (BERT) Program with the International Monetary Fund (IMF). The BERT program included the requirement to significantly reduce public spending and service. Several governmental agencies were privatized. The BERT was extended for 5 years. Therefore, MIBI and BIDC contributions are at moderate scale. Therefore, it was necessary to postpone the project for 1 year (up to June 2023).

“Barbados’ economic outlook for 2022 will be heavily influenced by its continued vulnerability to external shocks. The International Monetary Fund is forecasting an increase in global economic activity of 4.4 percent, but the strength of the recovery in tourism-dependent economies like Barbados will be affected by the ability of countries across the globe to control the spread of the pandemic that has caused our economy to operate well below its potential over the past two years... Government remains committed to the fiscal discipline needed for the sustainability of its debt over the medium term. The adoption of fiscal rules designed to place the debt ratio on a sustainable path is critical to this commitment”. Even though that, the Bloom Cluster project has continued with its implementation and major progress has been got from the second half of 2021. Major impacts are reflected in the establishment of partnerships for cooperating in the leverage of funds for cluster sustainability.

To begin, mitigation measures have been taken. Due to COVID-19 all certified training courses have been completed online in 2020-2021. Several online courses have been completed by cluster stakeholders since September 2020. In 2020-2021 cluster mobilized several challenging and demanding online training courses in cooperation with Coursera, ILO International Training Center and GSI. Topics of the training activities have been covering startups and entrepreneurship, business idea and business model validation methods, green business growth, Solar PV installations, management of consulting and training activities and renewable energy solutions for SIDS. Furthermore, when possible, the cluster organized physical events with international partners that have local presence in the country, to promote startups business plans in order to leverage funds. From the 2nd half of 2021, hybrid trainings have been taken with normality, for instance, those implemented with LIF, Export Barbados, SAGANA, etc.

It is worth highlighting that the Government is putting high emphasis on economy diversification, identifying the Bloom Cluster as a key element during this process. BIDC is planning to implement a Cluster Tech Science park in the country where the Bloom will be integrated for continuing and reinforcing its operations. The GEF project is the most important initiative of the Government in this area.

2. Please briefly elaborate on any **minor amendments**⁷ to the approved project that may have been introduced during the implementation period or indicate as not applicable (NA).

⁷ As described in Annex 9 of the *GEF Project and Program Cycle Policy Guidelines*, **minor amendments** are changes to the project design or implementation that do not have significant impact on the project objectives or scope, or an increase of the GEF project financing up to 5%.

Please tick each category for which a change has occurred and provide a description of the change in the related textbox. You may attach supporting documentation, as appropriate.

<input type="checkbox"/>	Results Framework	NA
<input type="checkbox"/>	Components and Cost	NA
<input type="checkbox"/>	Institutional and Implementation Arrangements	NA
<input checked="" type="checkbox"/>	Financial Management	To create a sustainability fund to support the operations of the Bloom Cluster beyond project duration. To be proposed in the 4 th SC meeting.
<input checked="" type="checkbox"/>	Implementation Schedule	The GEF project was extended for one year due to the COVID 19 and the financial crisis impact.
<input type="checkbox"/>	Executing Entity	NA
<input type="checkbox"/>	Executing Entity Category	NA
<input type="checkbox"/>	Minor Project Objective Change	NA
<input type="checkbox"/>	Safeguards	NA
<input type="checkbox"/>	Risk Analysis	NA
<input type="checkbox"/>	Increase of GEF Project Financing Up to 5%	NA
<input type="checkbox"/>	Co-Financing	NA
<input type="checkbox"/>	Location of Project Activities	NA
<input type="checkbox"/>	Others	NA

3. Please provide information related to the financial implementation of the project.

The project expenditures (excl. PPG grant) amount to USD 1,376,702.01. A first execution agreement with BIDD to execute the Cluster component was signed in November 2019. In line with the “twinning” execution modality.

Two companies/consortia were contracted to develop the following: “The clean-tech readiness and quality infrastructure assessments and policy dialogues in Barbados” – contracted AtomSolutions- (June 2021); and, “the Barbados Clean Tech Industry Report and Tracking Framework” contracted EY Management Limited in consortia with Mind the Bridge (November 2021). Furthermore, an international consultant was hired to develop the Mid Term Review of the project.



PROJECT DELIVERY REPORT

Project:	150123 - STRATEGIC PLATFORM TO PROMOTE SUSTAINABLE ENERGY TECHNOLOGY INNOVATION, INDUSTRIAL DEVELOPMENT AND ENTREPRENEURSHIP IN BARBADOS	Project Manager:	Martin Lugmayr	Project Validity Status:	31.05.2017 - 05.06.2023 Implement		
Reporting Period:	06.06.2017 - 30.06.2022	Project Theme:	Energy and Environment	Country:	Barbados		
Sponsor Nr.	Sponsor	Grant	Grant Description	Fund	Currency	Grant Status	Grant Validity
400150	GEF - Global Environment Facility	2000003671	BARBADOS SUST ENERGY	GF	USD	Closed	06.06.2017 - 06.06.2018
400150	GEF - Global Environment Facility	2000003915	BARBADOS_SUSTAINABLE	GF	USD	Authority to implement	05.06.2018 - 05.06.2023

	Description	Released Budget Current Year (a)	Obligations Current Year (b)	Disbursements Current Year (c)	Expenditures Current Year (d=b+c)	Total Agreement Budget (e)	Released Budget (f)	Obligations + Disbursements (g)	Funds Available* (h=f-g)	Support Cost (i)	Total Expenditures (=g+i)
		USD	USD	USD	USD	USD	USD	USD	USD	USD	USD
2000003671											
150123-0-01-01	Project document endorsed by GEF										
1500	Local travel	0.00	0.00	0.00	0.00	2,327.07	2,327.07	2,327.07	0.00	0.00	2,327.07
1700	Nat. Consult./Staff	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2100	Contractual Services	0.00	0.00	0.00	0.00	47,670.00	47,670.00	47,670.00	0.00	0.00	47,670.00
5100	Other Direct Costs	0.00	0.00	0.00	0.00	(94.05)	(94.05)	(94.05)	0.00	0.00	(94.05)
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4,750.00	4,750.00
150123-0-01-01	Total	0.00	0.00	0.00	0.00	49,903.02	49,903.02	49,903.02	0.00	4,750.00	54,653.02
2000003671	Total	0.00	0.00	0.00	0.00	49,903.02	49,903.02	49,903.02	0.00	4,750.00	54,653.02
2000003915											
150123-1-01-01	1.1 Policy and regulatory framework										
1100	Staff & Intern Consultants	383.96	0.00	0.00	0.00	84,866.48	84,866.48	84,482.52	383.96	0.00	84,482.52
1500	Local travel	500.00	0.00	0.00	0.00	500.00	500.00	0.00	500.00	0.00	0.00
1700	Nat. Consult./Staff	91.08	0.00	0.00	0.00	2,880.54	2,880.54	2,789.46	91.08	0.00	2,789.46
2100	Contractual Services	7,758.97	(21,883.36)	21,874.08	(9.28)	109,498.50	109,498.50	101,730.25	7,768.25	0.00	101,730.25
5100	Other Direct Costs	879.43	0.00	0.00	0.00	1,700.00	1,700.00	820.57	879.43	0.00	820.57
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	18,033.24	18,033.24
150123-1-01-01	Total	9,613.44	(21,883.36)	21,874.08	(9.28)	199,445.52	199,445.52	189,822.80	9,622.72	18,033.24	207,856.04
150123-1-01-02	1.2 Investment and business promotion										
1100	Staff & Intern Consultants	90,812.20	69,723.43	65,332.70	135,056.13	259,250.05	259,250.05	303,493.98	(44,243.93)	0.00	303,493.98
1500	Local travel	15.90	0.00	(562.69)	(562.69)	8,344.14	8,344.14	7,765.55	578.59	0.00	7,765.55
1700	Nat. Consult./Staff	5,391.20	6,448.43	5,387.78	11,836.21	25,839.50	25,839.50	32,284.51	(6,445.01)	0.00	32,284.51
2100	Contractual Services	365,684.13	(54,187.64)	26,408.02	(27,779.62)	989,937.25	989,937.25	596,473.50	393,463.75	0.00	596,473.50
3500	International Meetings	500.00	0.00	0.00	0.00	500.00	500.00	0.00	500.00	0.00	0.00
4500	Equipment	500.00	0.00	0.00	0.00	500.00	500.00	0.00	500.00	0.00	0.00
5100	Other Direct Costs	390.02	0.00	630.69	630.69	4,462.58	4,462.58	4,703.25	(240.67)	0.00	4,703.25
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	89,748.59	89,748.59
150123-1-01-02	Total	463,293.45	21,984.22	97,196.50	119,180.72	1,288,833.52	1,288,833.52	944,720.79	344,112.73	89,748.59	1,034,469.38
150123-1-01-03	1.3 Capacity building and knowledge										
1100	Staff & Intern Consultants	13,170.58	0.00	12,747.04	12,747.04	122,951.17	122,951.17	122,527.63	423.54	0.00	122,527.63
1500	Local travel	500.00	0.00	0.00	0.00	500.00	500.00	0.00	500.00	0.00	0.00
1700	Nat. Consult./Staff	391.20	0.00	0.00	0.00	7,726.57	7,726.57	7,335.37	391.20	0.00	7,335.37
2100	Contractual Services	28,489.91	0.00	0.00	0.00	55,749.25	55,749.25	27,259.34	28,489.91	0.00	27,259.34
3500	International Meetings	1,000.00	0.00	0.00	0.00	1,000.00	1,000.00	0.00	1,000.00	0.00	0.00
5100	Other Direct Costs	1,662.64	0.00	61.71	61.71	3,019.46	3,019.46	1,418.53	1,600.93	0.00	1,418.53
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15,061.53	15,061.53
150123-1-01-03	Total	45,214.33	0.00	12,808.75	12,808.75	190,946.45	190,946.45	158,540.87	32,405.58	15,061.53	173,602.40
150123-1-51-01	Project Management and Monitoring										
1100	Staff & Intern Consultants	899.80	0.00	0.00	0.00	19,089.88	19,089.88	18,190.08	899.80	0.00	18,190.08
1500	Local travel	5,000.00	0.00	0.00	0.00	5,000.00	5,000.00	0.00	5,000.00	0.00	0.00
1700	Nat. Consult./Staff	20,554.80	0.00	0.00	0.00	23,605.46	23,605.46	3,050.66	20,554.80	0.00	3,050.66
5100	Other Direct Costs	2,123.82	0.00	0.00	0.00	2,563.17	2,563.17	439.35	2,123.82	0.00	439.35
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,059.69	2,059.69
150123-1-51-01	Total	28,578.42	0.00	0.00	0.00	50,258.51	50,258.51	21,680.09	28,578.42	2,059.69	23,739.78
150123-1-53-01	Evaluation										
1100	Staff & Intern Consultants	1,075.27	0.00	0.00	0.00	13,000.00	13,000.00	11,924.73	1,075.27	0.00	11,924.73
1500	Local travel	1,000.00	0.00	0.00	0.00	1,000.00	1,000.00	0.00	1,000.00	0.00	0.00
1700	Nat. Consult./Staff	1,500.00	0.00	0.00	0.00	1,500.00	1,500.00	0.00	1,500.00	0.00	0.00
2100	Contractual Services	30,000.00	0.00	0.00	0.00	30,000.00	30,000.00	0.00	30,000.00	0.00	0.00
3500	International Meetings	500.00	0.00	0.00	0.00	500.00	500.00	0.00	500.00	0.00	0.00
5100	Other Direct Costs	890.29	0.00	0.00	0.00	1,000.00	1,000.00	109.71	890.29	0.00	109.71
9300	Support Cost IDC	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,143.26	1,143.26
150123-1-53-01	Total	34,965.56	0.00	0.00	0.00	47,000.00	47,000.00	12,034.44	34,965.56	1,143.26	13,177.70
2000003915	Total	581,665.20	100.86	131,879.33	131,980.19	1,776,484.00	1,776,484.00	1,326,798.99	449,685.01	126,046.31	1,452,845.30
150123	USD Total	581,665.20	100.86	131,879.33	131,980.19	1,826,387.02	1,826,387.02	1,376,702.01	449,685.01	130,796.31	1,507,498.32

* Does not include Unapproved Obligations

	investors and VCs. Organization of investor meetings with CCIC and BCCL. Development of investor study.																																										
	Recruitment of 2 university graduates for the BI unit. Implementation of at least 5 business intelligence briefs																																										
	Joint projects in R&D, marketing & sales and development of new ventures. Cooperation proposals and agreements between parties created (RaEng SAGANA, CCIC)																																										

Project Component 3 – Capacity Building and Knowledge Management																							32,405.58				
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Outcome 3.1																																																
Output 3.1.1	Identification of standards in PV & SWH sector, Providing technical support for SMEs in writing of their proposals for product certifications.																																															
	Assessment of compliance with standard requirements. Financial support for covering certification expenses and product improvements.																																															
Output 3.1.2	Organizing on-line training programme in association with ILO. Course is paid by the Bloom.																																															

X. Synergies

1. Synergies achieved:

The Bloom Cluster has already established a broad range of international and regional partnerships including the International Association of Science Parks (IASP), Climate-KIC, Climate launchpad (CLP) and European Cluster Collaboration Platform (ECCP). The Cluster has signed an agreement with the Climate launchpad that is the European Union's biggest pre-accelerator for the early-stage climate technology startups. Bloom is also an associate member of IASP that is the global innovation ecosystems and network for science parks and areas of innovation. www.iasp.ws. Similarly, the cluster has signed MOUs with the University of West Indies (UWI) and the Caribbean Climate Innovation Center (CCIC). Barbados Chamber of Commerce and Industry (BCCI) is providing valuable support for the Cluster in awareness building, marketing, and evaluation of applications for the Bloom Cleantech Incubation Program.

The Bloom Cluster cooperates with the Caribbean Centre for Renewable Energy and Energy Efficiency (CCREEE), which is based in Barbados and will contribute to the business intelligence and capacity-building component of the cluster. Among the joint activities, it is the development of a new project proposal in order to harness algae/sargassum for industry development and alleviate social and economic impacts in blue economies of the region, including Barbados. Furthermore, the Cluster submitted proposals for funds opportunities to Private Finance Advisory Network (PFAN) and IDB. One of them presented by Goodridge Power's will be implemented and involves the deployment of a PV solar farm.

The Cluster counts with a well established incubation program, which offers mentoring and coaching services to 11 clean-tech businesses and start-ups; (i) Good Ridge Power-Solar PV Consulting; (ii) ProSolar 246 Inc; (iii) BIMEV Rental Services Inc; (iv) SJPI - Solar Powered e-Vessel Project; (v) EcoMycö; (vi) Green Collective; (vii) Red Diamond Compost – Green agrochemicals; (viii) HGFC (Healing Grove Container Farm-Climate Resilient Agriculture); (ix) OnSolar Solutions Inc; (x) CEMBI (Caribbean Environmental Management Bureau); and, (xi) Iron Charging Solutions.

In the same line, the Bloom Cluster will be attending the 5th GNSEC SC meeting with the objective to promote the program and establish synergies with other regional centres apart from CCREEE for replication of the initiative. Furthermore, there are envisaged meetings with PFAN, CTCN to reinforce cooperation and define funding opportunities.

Stories to be shared (Optional)

Included stories of the Bloom Cluster members:

<http://bidc.org/mediareources/cleantech-futures-healing-grove-contained-farms>

<http://bidc.org/mediareources/cleantech-futures-red-diamond-compost>

<http://bidc.org/mediareources/cleantech-futures-prosolar-246-inc>

<http://www.bidc.org/mediareources/cleantech-futures-goodridgepower>

<http://bidc.org/mediareources/cleantech-futures-economyco>

<http://www.bidc.org/mediareources/cleantech-futures-bitegreen-app-cembi>

<http://www.bidc.org/mediareources/cleantech-futures-bim-ev-0>

http://www.ipsnews.net/2021/07/cleantech-entrepreneurs-driving-green-recovery-barbados/?fbclid=IwAR21qUdyMBsnpDJDzyULHTFq9TWeWe4DgxpGwD4_uteehM6q83vDuuxqbg

https://www.unido.org/stories/cleantech-entrepreneurs-driving-green-recovery-barbados?fbclid=IwAR0yzLtq-D8nnpdhMVxitp69SaSCOZvaoza6bemPc_0CBkFsUW6ACXYRtwU

<https://barbadostoday.bb/2021/07/16/btcolumn-towards-a-green-recovery/>

Articles:

<https://www.iasp.ws/activities/blog/@103/development-of-innovative-cleantech-ecosystem-in-barbados>

<https://clustercollaboration.eu/content/bloom-cleantech-cluster>

Relevant publications:

[Business Barbados 2022 \(millerpublishing.net\)](#) pag. 64

[UNIDO Annual Report 2021](#) pag. 41

UNIDO. General Conference Nineteenth session. Page 3. (December 2021)

GEF article:

<https://www.unido.org/stories/cleantech-entrepreneurs-driving-green-recovery-barbados#story-start>

News:

- Bloom Cleantech Cluster Rewarded Green Entrepreneurs:
<https://bloomcluster.com/news/bloom-cleantech-cluster-rewarded-green-entrepreneurs/>
- Bloom Cleantech Startups Successful In Raising Grant Financing:
<https://bloomcluster.com/news/bloom-cleantech-startups-successful-in-raising-grant-financing/>
- Call For Applications For The LIF Global Programme:
<https://bloomcluster.com/news/call-for-applications-for-the-lif-global-programme/>
- Bloom Cleantech Incubator Awarded Grants For The 5 Startups:

- <https://bloomcluster.com/news/bloom-cleantech-incubator-awarded-grants-for-the-5-startups/>
- Green Circular Economy On Spotlight In Barbados: <https://bloomcluster.com/news/green-circular-economy-on-spotlight-in-barbados/>
- Three Barbadian Entrepreneurs Selected For The LIF 2022 Programme: <https://bloomcluster.com/news/three-barbadian-entrepreneurs-selected-for-the-lif-2022-programme/>
- Emerging Green Technologies On Spotlight In Cleantech Dialogues: <https://bloomcluster.com/news/emerging-green-technologies-on-spotlight-in-cleantech-dialogues/>
- Call For Solutions- Ocean Innovation Challenge 2022: <https://bloomcluster.com/news/call-for-solutions-ocean-innovation-challenge-2022/>
- Energy Security On Spotlight In Cleantech Dialogues In Barbados: <https://bloomcluster.com/news/energy-security-on-spotlight-in-cleantech-dialogues-in-barbados/>
- Eleven local cleantech companies to benefit from BCCI representation and support: <https://www.barbadoschamberofcommerce.com/eleven-local-cleantech-companies-to-benefit-from-bcci-representation-and-support/>