GREEN & BLUE ECONOMY LEARNING NEEDS ASSESSMENT FOR BARBADOS

MAINSTREAMING GREEN-BLUE ECONOMY PRINCIPLES IN UNIVERSITY EDUCATION IN BARBADOS THROUGH THE UNIVERSITY OF THE WEST INDIES, CAVE HILL CAMPUS

VOL. II

Prepared by

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ABBREVIATIONS

BE	Blue Economy
CETL	UWI-CH Centre of Excellence for Teaching and Learning
CCCCC	Caribbean Community Climate Centre
CHSOB	Cave Hill School of Business
CERMES	Centre for Resource Management and Environmental Studies
CFPSB	Competency Framework for the Public Service of Barbados
D-SA	Demand-Side Assessment
GBEL	Green and Blue Economy Learning
GBELNA	Green and Blue Economy Learning Needs Assessment
GBELPRO	Green and Blue Economy Learning Programme
GE	Green Economy
GEF	Global Environment Facility
GESS	Green Economy Scoping Study
GE-PDS	Green Economy Professional Development Seminars (
GET	Green Economy
GECF	Green Economy Competency Framework
GOB	Government of Barbados
PAGE	Partnership for Action on Green Economy
S-SA	Supply-Side Assessment
SIDS	Small Island Developing States
SIDS GE-KTH	SIDS Green Economy Knowledge Transfer Hub (
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute of Training and Research
UWI-CH	University of the West Indies - Cave Hill Campus

1.0 INTRODUCTION

As a small island developing state, Barbados is particularly vulnerable to global climate change and natural disasters. Barbados, historically, is one of the more prosperous Caribbean islands, due to successful economic diversification and a transition from an agricultural-based economy to a service-based one. The country has also invested significantly in social development and inclusion, and boasts a very high Human Development Index. However, the recent global financial and economic crises have slowed growth, and dependence on imported fossil fuels is putting pressure on both the economy and the environment.

Significantly, Barbados became one of the first Small Island Developing States (SIDS) to establish a green economic policy framework[1]. That commitment was buttressed by the National Strategic Plan 2006-2025, that outlined a number of programmes in the context of "Building a Green Economy." This was premised on Barbados becoming "[...] the first green country in Latin America and the Caribbean."

As articulated by the Barbados Green Economy Scoping Study (GESS)[2] a green economy is defined as:

> *"An integrated production, distribution, consumption and waste assimilation system that, at its core, reflect the fragility of our small island ecosystems as the basis for natural resource protection policy, business and investment choice, human development programming, and for the facilitation of export market development strategies."*

The green economy assessment undertaken at that time focused on a number of Green Economy policy outcomes, namely:

1. Economic Growth and Development;
2. Poverty reduction;
3. Green jobs creation;
4. Environmental improvement; and
5. Resource Efficiency

[1] Government of Barbados, 2007. Economic and Financial Policies of the Government of Barbados. Presented by the Rt Hon Owen Arthur, Minister of Finance. March 14, 2007.

[2] Moore, W., Alleyne ,F., Alleyne, Y., Blackman, K., Blenman, C., Carter, S., Cashman, A., Cumberbatch, J., Downes, A., Hoyte, H., Mahon, R., Mamingi, N., McConney, P., Pena, M., Roberts, S., Rogers, T., Sealy, S., Sinckler, T. and A. Singh. 2014. Barbados' Green Economy Scoping Study. Government of Barbados, University of West Indies - Cave Hill Campus, United Nations Environment Programme, 244p.

Together, those outcomes are located in the three dimensions of sustainable development – economic, social and environment.

In addition to sector analyses, the GESS[3] also indicated a number of principles that should underpin a green transition in Barbados. Those principles, adopted in the Barbados Sustainable Development Policy in 2004, include:

1. Quality of Life
2. Conservation of Resources
3. Economic Efficiency
4. Equity; and
5. Participation.

The integration of green economy principles in policies and programmes remain a strategic requirement for enabling the transition to Green Economy.

Further, a key enabler identified and analysed for building a green economy in the GESS was **"Education, Training and Capacity Enhancement"**. As a result, a series of capacity building interventions were further recommended. Moore et al[4], noted

> *"A critical component of the green economy initiative is having the right mix of skills and knowledge to support the transition. In numerous stakeholder consultations, it was noted that government departments that interface with businesses or the public and implement are often short-staffed. Many private sector actors also mentioned the need for government to build capacity. This would enable them to play their part in the country's transition to a green economy and engage in new economic opportunities, as noted in the previous section. It is evident that having the human capital for this purpose is a critical enabling condition, which will have to be met.*
>
> *Moreover, it is clear that there are new areas of need, that is, certification, which will require support. All of these will require capacity building at different levels and by different types of institutions in the form of vocational and technical training, graduate and postgraduate training, and continuing professional development. There is an exigency, therefore, for a better*

[3] *Ibid.*

[4] *Ibid.* (Page 200).

understanding of the capacity-building needs to support a green economy as well as the identification of who should provide what sort of capacity building."

In 2018, the Government of Barbados reaffirmed its commitment to a Green Economy and the further implementation of the 2007 Policy[5]. Additionally, the Government identified the sustainable development and management of its ocean space in the broader context of greening the economy, vis-a-vis a blue economy.

Against this background, and given Government's current priorities, the concepts of green economy and blue economy are being brought together conceptually in the design of a Green-Blue Economy Learning programme. (GBELPRO) commencing at the University of the West Indies-Cave Hill Campus (UWI-CH), with a view to expand, over time, to other tertiary institutions in Caribbean SIDS and SIDS globally.

1.1 THE DEVELOPMENT OF THE GREEN-BLUE ECONOMY LEARNING PROGRAMME AT UNIVERSITY OF THE WEST INDIES - CAVE HILL CAMPUS

The United Nations Institute for Training and Research (UNITAR) engaged the UWI-CH (as the selected technical partner for the Programme of Action for Green Economy (PAGE)) to undertake, *inter alia*, a Green-Blue Economy Learning Needs Assessment for Barbados. The assessment takes place against requests for capacity building interventions made by the Government of Barbados during the PAGE Re-engagement Mission of November 2018. Those requests were consolidated and represented in Barbados' first PAGE work programme as follows:

1. *Complete the feasibility study for the SIDS-SIDS Green Economy Knowledge Transfer Hub;*
2. *Facilitate SIDS-SIDS cooperation and collaboration via PAGE academies, expositions and Virtual Programmes;*
3. *Establish a portfolio of executive (short-term) GE/BE training programmes via the GE Knowledge Transfer Hub;*
4. *Facilitate the mainstreaming Blue and Green Economy principles in public sector training;*
5. *Integrate GE/BE concepts in existing and new curricula in academia through courses and degrees (e.g. in science, economic, law faculties);*

[5] Cabinet Submission entitled "Endorsement of the United Nations Partnership for Action on Green Economy Support to the Government of Barbados and Approval of the National Governance Structure and Programme Priorities

After consultations with key stakeholders, it was agreed that a framework programme, within the UWI Cave Hill SIDS Green and Blue Economy Learning Programme (**SIDS-GBELPRO**) be established with the support of UNITAR and PAGE.

The overall objective of Green-Blue Economy Learning Programme is to mainstream relevant Green Economy and Blue Economy principles in university-level-learning interventions that address contemporary sustainable development policy challenges in Barbados and other small island developing states.

The guiding objectives for the development of the **SIDS-GBELPRO** are:

1. To extract the Green Learning components of the myriad international instruments to which Barbados and Caribbean SIDS have committed to, including from the GEF projects implemented in Caribbean SIDS, and translate them into Green Learning products and processes for integration into formal teaching at the tertiary level.

2. To ascertain learning priorities, competencies, outcomes and needs for development and implementation of Green and Blue Economy policies in Barbados and Caribbean SIDS;

3. To ascertain university-level curricula readiness to support Green and Blue Economy learning in Barbados and Caribbean SIDS;

4. To increase the capacity of the university to deliver green and blue economy learning interventions to address sustainable development policy challenges in Barbados and Caribbean SIDS[6];

5. To conceptualize and initially plan for the establishment of a SIDS-SIDS Green Economy Knowledge Transfer Hub.

6. To support the mainstreaming/coordination and implementation of the learning, education, applied research, and analytical components of PAGE Barbados, inclusive of the activities resulting therefrom, as well as activities designed to "build back better" in the post COVID-19 world.

7. To improve the capacities of public officials and other key stakeholders in Barbados in the area of green and blue economy policy development and implementation.

The process for further developing the SIDS-GBELPRO includes a number of components, including, *inter alia*:

[6] Includes providing training for professionals already engaged in the development and delivery of learning activities, for various audiences;

1. The Establishment and Operationalisation of a SIDS-SIDS Green-Blue Economy Knowledge Transfer Hub;
2. A Green-Blue Economy Learning Needs Assessment;
3. Course Development and Quality Assurance Safeguards;
4. Programme Delivery; and
5. SIDS Green-Blue Economy Learning, Communication and Partnership.

This report responds to Component 2 of the SIDS Green Economy Learning Programme, namely the Green- Blue Economy Learnings Needs Assessment.

At the 2015 1st Global Forum on Green Economy Learning (PAGE, 2015) it was concluded that that green economy learning in the national context has a number of features, namely

- ***help to progressively develop skills to strengthen national policies and goals for a transition towards a green economy;***
- ***draw from, and be inspired by, relevant regional and global policies and agreements;***
- ***be based on needs analysis taking into account past, present and planned education and training initiatives, the capacities of education and training institutions;***
- ***identify desired IGE competencies among all target audiences including most vulnerable and traditionally excluded groups, such as out-of-school, unemployed youth and persons with disabilities, in accordance with the broader objective to 'leave no one behind';***
- ***be comprehensive in intent for the medium to long term, yet focused on short term immediate priorities in order to build momentum and visibility;***
- ***be made meaningful to national and local realities so that IGE can be understood, valued and implemented; and***
- ***wherever possible, measure, record and report on results.***

These features will be considered in the design and undertaking of the GBELNA, and in the context of developing the GBELPRO and SIDS-SIDS Green Economy Knowledge Transfer Hub.

2.0 THE GREEN AND BLUE ECONOMY LEARNING NEEDS ASSESSMENT METHODOLOGY

The Green and Blue Economy Learning Needs Assessment targeted a wide cross-section of stakeholders, in particular Government,[7] at the managerial and technical level, as well as the teaching and coordination staff across the various faculties at the UWI-CH. . Students as well as regional institutions were also consulted. Within UWI-CH, the Centre of Excellence for Teaching and Learning (CETL)[8] was identified by the Office of the Deputy Principal (UWI PAGE Technical Lead) as a key constituent, in particular given its role in curriculum development and quality assurance. The CETL was therefore consulted in the design and conduct of the assessment.

A three-phase inclusive approach was employed for the Green and Blue Economy Learning Needs Assessment comprising:

i. A Demand Side Analysis;
ii. A Supply Side Analysis; and
iii. Identification of elements for the UWI-CH SIDS GBELPRO.

See Figure 1 overleaf.

[7] The focus of this current assessment is the Public Service of Barbados.

[8] The UWI CH Centre of Excellence for Teaching and Learning (CETL) is concerned with the promotion of evidence-based pedagogy underpinned by - quality faculty development services,promotion of a learning-centred academic culture,purposeful application of technology, anda physical and virtual environment conducive to achieving the Campus' goal of instructional and learning excellence.

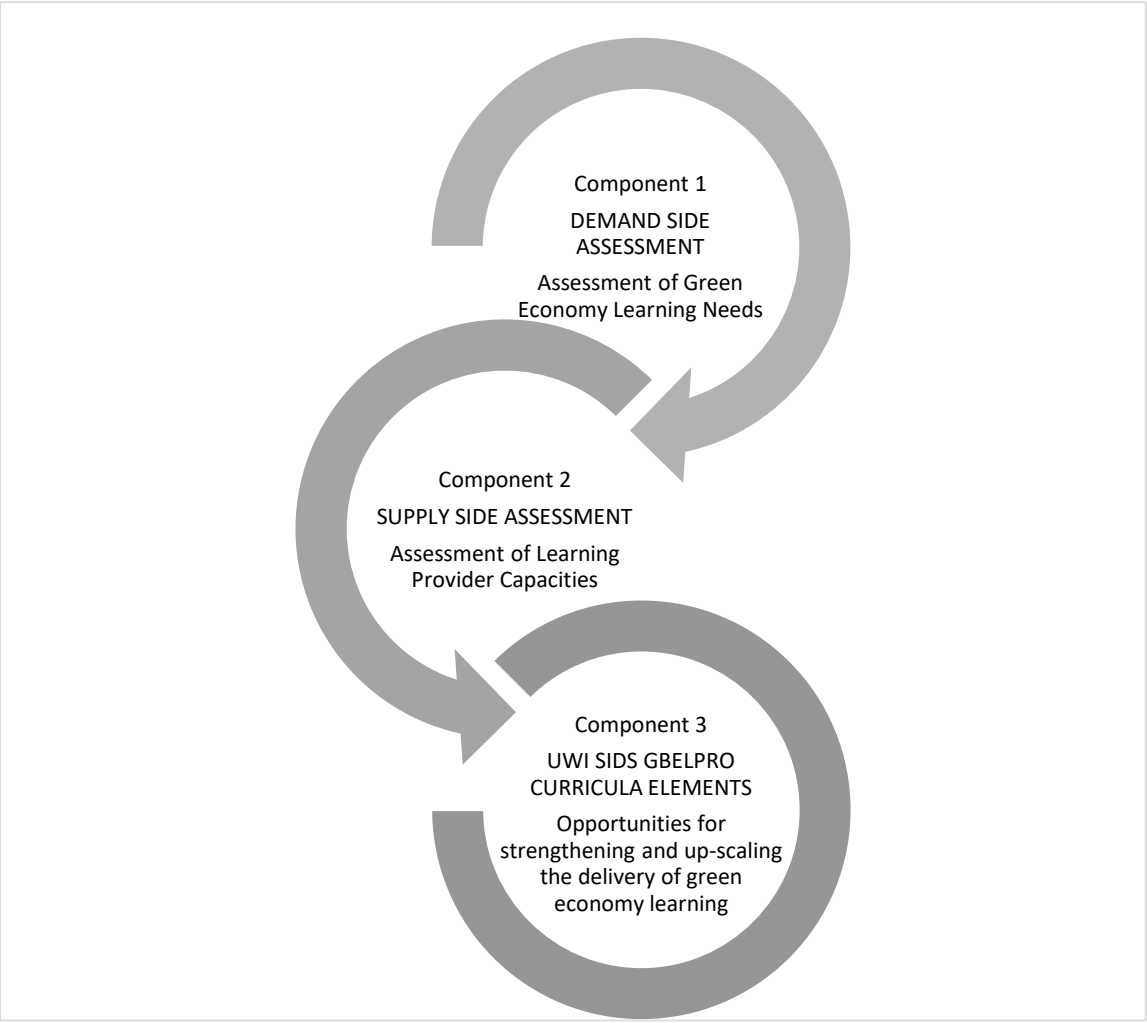


Figure 1: The Barbados Green Economy Learning Needs Assessment Process

2.1 THE GREEN ECONOMY LEARNING NEEDS ASSESSMENT- DEMAND SIDE ANALYSIS

Regarding the Demand-Side Analysis (D-SA), learning needs and desired outcomes of various stakeholders were identified utilizing a range of tools, including:

- Client Consultations;
- Desktop Research;
- Joint Expert Team and Client Consultations;
- Stakeholder Test Interviews;
- Stakeholder Demand Side Surveys; and
- Stakeholder Dialogues/Focus Groups.

2.1.1 CLIENT CONSULTATIONS

Client consultations involved the engagement of the Government-designated PAGE focal point, members of the Barbados' appointed PAGE Governance Mechanism, and the PAGE Liaison Group convened under the auspices of the PAGE National Coordinator. The intention of client consultations was to ensure the PAGE Technical Focal Point was kept abreast of national green and blue economy priorities- a foundational element to the GBELNA. A key meeting in this regard was that held on January 10, 2020 at UWI-CH, that served as an PAGE introductory consultation to the PAGE Governance mechanism, as well as a reference point for gathering broad client perspectives on conceptual and policy issues pertaining to green and blue economy. .

Client consultations were continuously throughout the GBELNA.

2.1.2 DESKTOP RESEARCH

Desktop research focused on PAGE methodology for conducting learning needs assessments, previous PAGE supported country-based learning needs assessments, and national green economy policies.

2.1.3 JOINT EXPERT TEAM AND CLIENT TECHNICAL CONSULTATIONS

The purpose of Joint Expert Teams and Client Technical Consultations (JETC-TECH) was to convene focused meetings on the conduct of the learning needs assessment among the partnership leads. Specifically, those meetings involved the UWI Green and Blue Economy Expert Team, the PAGE National Coordinator and Government focal points for green and blue economy. These meetings were held in-person and virtually. Initial consultations also involved meetings with the CETL.

Issues addressed by the JETC-TECH included methodology design, work programme review, stakeholder selection and engagement, results review and presentation.

2.1.4 STAKEHOLDER TEST INTERVIEWS AND DEMAND SIDE SURVEYS

A key data source was the deployment of the demand side survey. The instrument was administered to all members of the designated PAGE Governance mechanisms, namely the Cabinet-appointed Climate

Finance and Resilience Technical Working Group and the PAGE Liaison Group (N=30). The stakeholders targeted are listed at Appendix 1.

Administration of the final instrument was preceded by a test survey which was based on the model instrument derived from *"PAGE Learning for An Inclusive Green Economy: Assessing Priorities and Steering Action: Guidance Note".* Importantly, the model instrument was designed to support policy-based competency assessments, as opposed to vocational and technical assessments (see Box 1).

BOX 1: PARTNERSHIP FOR ACTION ON GREEN ECONOMY'S FOCUS

Given the Partnership for Action on Green Economy's focus on policy processes the scope of the competency frame is on the skills needed to enable a green economy, rather than vocational and technical type skills necessary to get a "green job".

The policy focus of the competency framework includes all professionals involved in policy development including officials, business, academia and civil society.

Extracted from PAGE (2016). "PAGE Learning for An Inclusive Green Economy: Assessing Priorities and Steering Action: Guidance Note".

The test survey exercise highlighted some difficulties in interpreting and distinguishing the various competency categories. The length of the survey exercise was also noted as a challenge and a simpler, streamlined instrument was recommended. As an alternative, "Skill-Knowledge-Behaviour" language was utilised for simplification and ease of communication. Those changes reduced the time taken to administer the survey.

As the GBELNA was targeted to government experts, emphasis was placed on policy priorities and associated desired policy outcomes. The policy priorities were based on governments existing green economy priorities including the 2007 Green Economy Policy framework[9] and the 2020 Throne Speech[10]. These thematic priorities along with the policy outcomes drawn from the analytical framework used in the Barbados Green Economy Scoping Study[11] are shown in Box 2.

BOX 2: GREEN ECONOMY POLICY OUTCOMES USED TO INFORM GREEN AND BLUE ECONOMY LEARNING

Government of Barbados' Green Economy Policy Priorities

[9] GOB, 2007

[10] GOB, 2020.

[11] *Supra*, 2.

1. Integrated waste management;
2. Renewable Energy including Waste-to-Energy;
3. Water augmentation to address scarcity;
4. Organic farming and Food security;
5. Sustainable Urban Development, Biodiversity and Ecosystem Restoration;
6. Coastal rehabilitation, fisheries improvement and marine conservation;
7. Greening the Tourism sector;
8. Beautification through the clean and green programme;
9. Building Climate Resilience; and
10. Greening Manufacturing and small and medium size enterprises.

Policy outcomes Drawn from the Analytical framework used in the Barbados Green Economy Scoping Study[12]:

1. Sustainable Growth and Development;
2. Poverty Reduction;
3. Green Jobs;
4. Environmental Improvement; and
5. Resource Efficiency.

The key issues covered in the survey included:

i. Role of institution in the Green and Blue Economy Policy Cycle;
ii. Integration of green/blue economic outcomes in policies plans and programmes;
iii. Challenges in pursuing green and blue economy outcomes throughout the policy cycle;
iv. Knowledge requirements to advance a Green Sustainable Economic Recovery and Transition;
v. Skills requirements to advance a Green Sustainable Economic Recovery and Transition;
vi. Behaviour requirements to advance a Green Sustainable Economic Recovery and Transition;
vii. Capacity of UWI-CH to provide any programmes that can satisfy meeting the knowledge, skills, and behaviour; and
viii. Competency-based certification programme recommendations.

The final survey instrument is at Appendix 2.

2.1.5 STAKEHOLDER DIALOGUES/FOCUS GROUPS

The results from the Demand Side Survey indicated learning needs of the targeted institutions and formed the basis of the demand side focus group meetings. The three (3) focus group meetings were framed as the *UWI-Cave Hill Green Economy 3E Talks: Shaping a Learning Agenda for a Green and Resilient Future* (See Appendix 3 for the format of the focus group sessions and Appendix 4 for the list of participants).

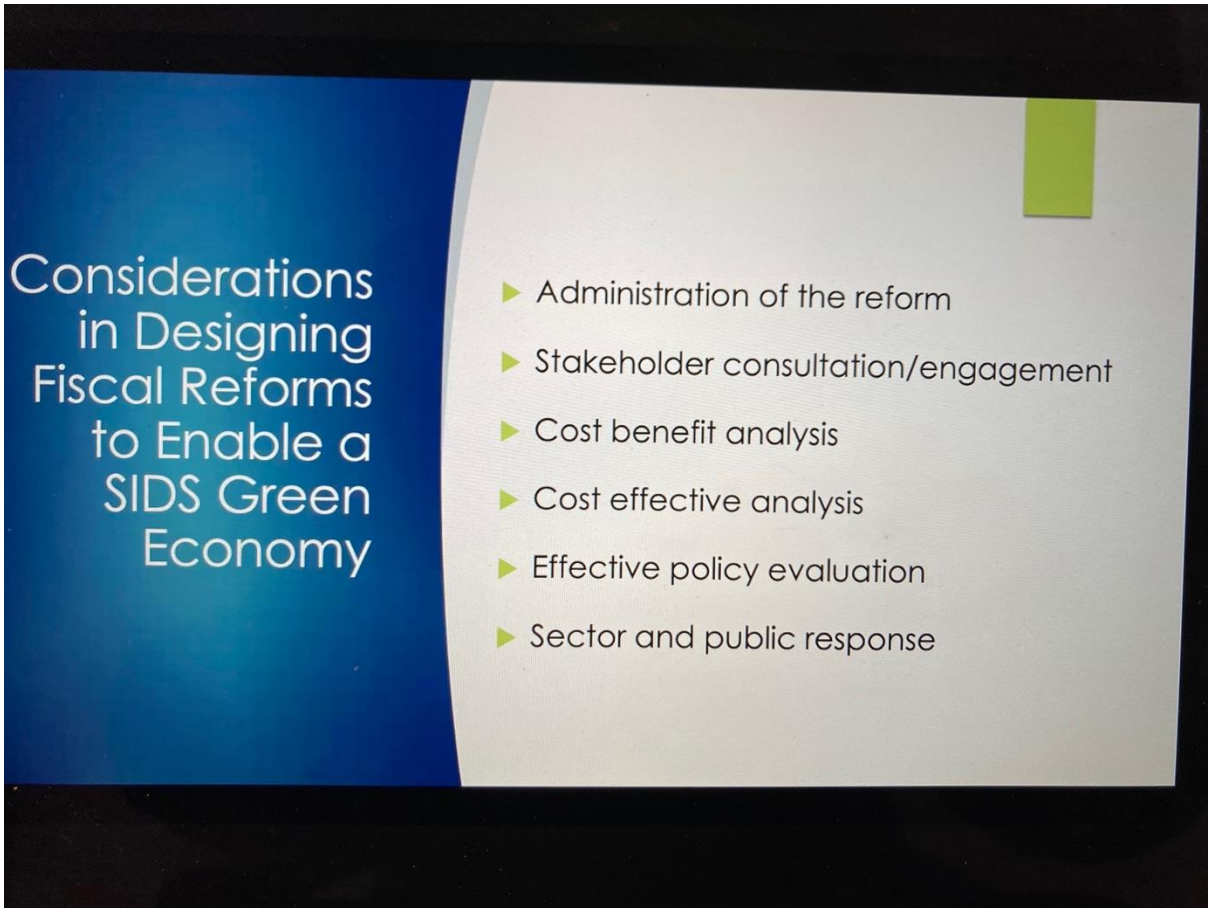
[12] *Supra,* fn 2.

The objectives of the UWI Cave Hill 3E Talks were:

1. To present and further elaborate key issues emerging from the *Green and Blue Economy Learning Needs Assessment Demand Side Survey for Policy Technocrats;*
2. To examine challenges associated with pursuing green or blue economy policy outcomes in the context of the policy cycle;
3. To ascertain elements of the preliminary skills-knowledge-behaviours (competencies) framework for designing Green and Blue Economy learning at UWI-CH; and
4. To share green and blue economy policy best practices in Barbados

The first dialogue, UWI Talk E1, was themed *"Envisioning A Sustainable Future: Policy Outcomes for Greening the Economy"* and focused on the issues and challenges associated with pursuing green and blue economy policy outcomes, as well as those associated with the various phases of the policy cycle.

The second dialogue, UWI Talk E2, examined the enabling conditions for a Green and Blue Economy. The specific theme was *"Enabling a Sustainable Future: Choosing the Right Policy Measure/Tool (Enabling Conditions) at the Right Time (Policy Cycle)".* The discussions addressed the degree to which enabling mechanisms are incorporated in the policy design processes; the role of integrated financial frameworks; the relationship between the policy maker and policy technocrat; and mechanisms to support those negatively impacted by the green economy transition.



The third dialogue, *"Empowered to Pursue A Sustainable Future: Knowledge, Skills and Behaviours for Policy Practitioners"* provided the opportunity to validate the survey results and to indicate additional learning needs.

Figure 2 models the D-SA process.

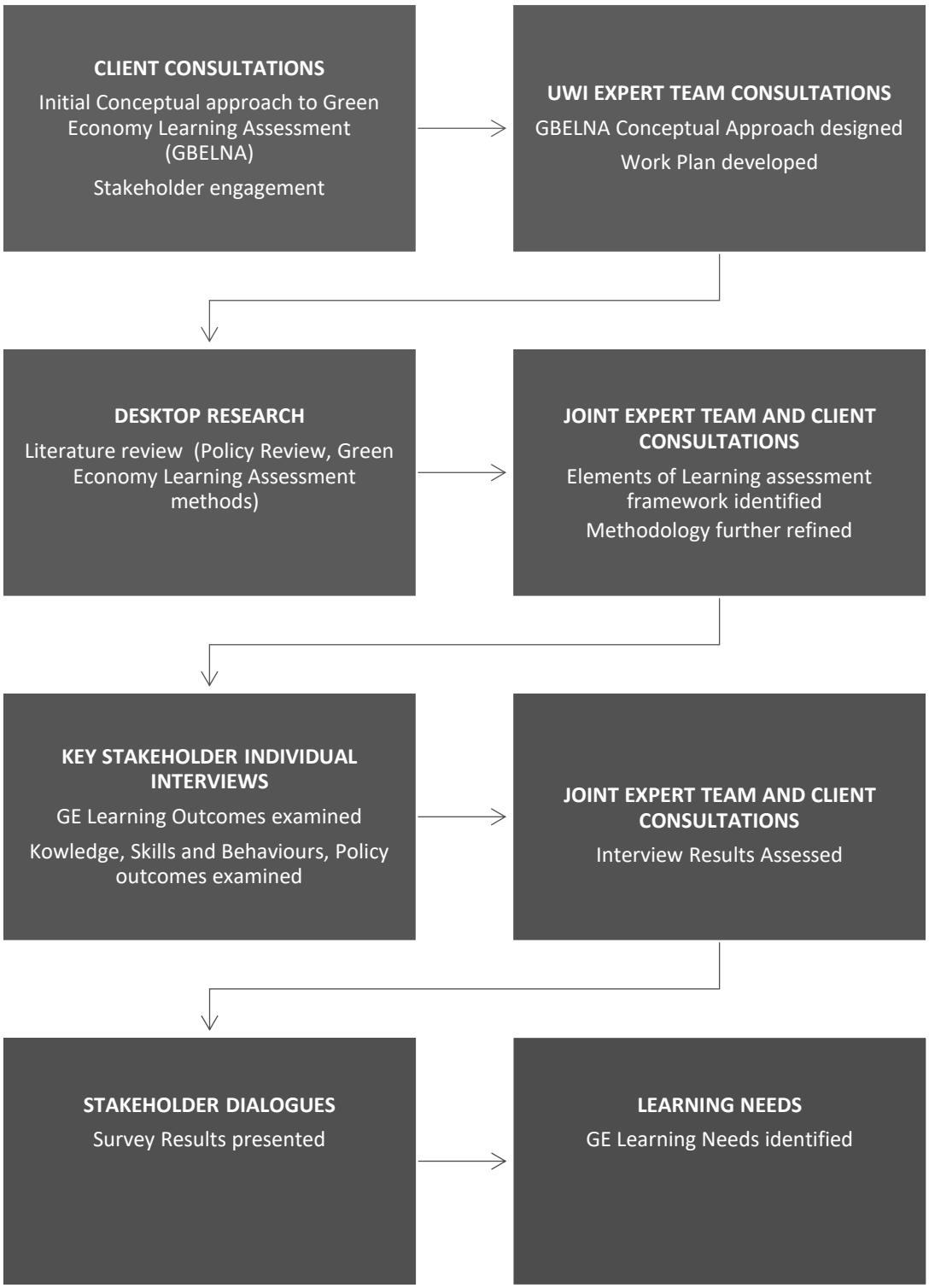


Figure 2: Phased Methodology of the Barbados Green Economy Learning Needs Assessment- Demand Side Analysis

2.2 THE GREEN AND BLUE ECONOMY LEARNING NEEDS- SUPPLY SIDE ASSESSMENT

Regarding the Supply-Side Assessment (S-SA), focus was placed on the current situation in the University as the primary education provider for policy-based education, and its prior work on producing the Green Economy Scoping Study.[13] The S-SA involved *inter alia*:

- Identifying UWI-CH faculty focal points for Green and Blue Economy based on the D-SA;
- Designing and Testing the Survey Instrument;
- Interviewing faculty representatives with the view of determining their understanding of the green economy, blue economy and sustainable development concepts;
- Audit course offerings being offered by UWI-CH;
- Presenting the extent UWI-CH contributes to green and blue economy learning and provide a list of existing relevant courses.

2.2.1 DSA REVIEW AND KEY FACULTY INFORMANT SELECTION

The expert team reviewed the knowledge skills and behaviours identified during the D-SA. Along with the guidance of the Office of the Deputy Principle this review informed the decision regarding the faculty members, serving as key informants, who would be engaged to determine the capacity of the university to provide green economy learning.

Senior members were selected from the following faculties, departments schools, institutes and centres:

1. Faculty of Humanities and Education;
2. Faculty of Law;
3. Faculty of Social Sciences;
4. Department of Economics;
5. Department of Government, Sociology, Social Work and Psychology, Faculty of Social Sciences;
6. School of Public Policy, Faculty of Social Sciences;
7. Centre for Professional Development and Lifelong Learning, Faculty of Social Sciences;
8. Cave Hill School of Business, Faculty of Social Science;

[13] *Supra*, fn. 2.

9. Faculty of Science and Technology, Centre for Resource Management and Environmental Studies (CERMES);
10. SEED Programme, Management Studies, Faculty of Social Sciences
11. Institute of Gender and Development Studies, Faculty of Social Science.

2.2.2 SURVEY DESIGN AND FACULTY INTERVIEWS

A supply side survey was designed and tested. The instrument (see **Appendix 3**) was similar to the provider capacity interview provided in the Guidance Note for Learning for an Inclusive Green Economy[14] but included questions regarding:

- whether green economy policy outcomes were considered when delivering relevant courses
- whether the desired learning needs identified during the D-SA were being delivered by UWI-CH and the extent; and
- whether the criteria defining Green Economy Learning provided in the 2016 Paris Summary Statement on Learning for an Inclusive Green Economy aligned with any Programmes/Courses.

The survey was tested in person with a UWI-CH Programme Coordinator. The interview lasted in excess of two (2) hours.

Discussions with the UWI team highlighted the possibility of low response rate as a result of the required time commitment. It was then decided that interviews might better facilitate a discussion surrounding the extent to which faculty members engaged in blue and green economy learning. An interview guide was thereafter developed. The final instrument, due to the Covid-19 pandemic was administered online. The interview guide is shown at Appendix 6. Also see Appendix 7 for the list of interviewees.

2.2.3 COURSE AUDIT AND ANALYSIS

An audit of courses from all seven (7) faculties was undertaken, namely:

- Faculty of Humanities and Education;
- Faculty of Law;
- Faculty of Social Sciences;
- Faculty of Science and Technology,
- Faculty of Medical Sciences
- Faculty of Sport
- Faculty of Culture, Creative and Performing Arts

[14] PAGE (2016), *PAGE Learning for An Inclusive Green Economy: Assessing Priorities and Steering Action: Guidance Note.*

Within the faculties, particular emphasis was placed on several academic units including:

- Department of Economics
- Department of Government, Sociology, Social Work and Psychology
- Centre for Resource Management and Environmental Studies (CERMES);
- School of Public Policy, Faculty of Social Sciences;
- Centre for Professional Development and Lifelong Learning,
- Cave Hill School of Business
- SEED Programme, Management Studies,
- Institute of Gender and Development Studies.

The consideration of green and blue economy policy outcomes formed the basis of the audit. Specifically, courses were assessed via examination of:

i. **Course Objectives,**
ii. **Course Description (and Content where available), and**
iii. **Course Learning Outcomes.**

The course audit facilitated the development of a matrix of courses/programmes. Courses (grouped by faculties and the related sub-units – schools, institutes, centres etc.) were mapped against relevant policy outcomes (see Box 2 above) whether they were expressed explicitly or implicitly. The matrix also indicated whether the course was taught at the graduate or undergraduate level.

2.2.4 MAPPING LEARNING NEEDS AGAINST COURSE COVERAGE

Based on the outputs of the supply side assessment, the course offerings identified in line with green economy policy outcomes were mapped against articulated learning needs, captured in the D-SA. Importantly, the mapping exercise was also intended to identify gap and as such opportunities for further green economy course development.

Figure 3 details the S-SA process.

Figure 3: Phased Methodology of the Barbados Green and Blue Economy Learning Needs Assessment- Supply Side Assessment

2.4 MAPPING GREEN AND BLUE ECONOMY LEARNING NEEDS AGAINST THE GOVERNMENT COMPETENCY FRAMEWORK

The Green Economy Scoping Study[15] states that the importance of education training, research, communication, and sensitisation to the green economy is paramount and notes that there is a significant gap in knowledge and skills necessary to seize opportunities presented by the green economy.

[15] *Supra*, fn 2 (Page 172)

The study indicated that there is a need to put appropriate learning education and training arrangements to facilitate the development of the necessary skills and expertise. Authors of the study identified mainstream green economy through education and training from vocational training, trade school, university and on the job training.

The GBELNA focuses on the policy process and the scope of the competency framework is on the knowledge, skills and behaviours needed to enable a GE rather than vocational and technical skills necessary to get a green job.[16]

For the purpose the GBELNA, the Green Economy Competency Framework (GECF)[17] by Wiek *et al* (2010) was reviewed and compared to the Competency Framework for the Public Service of Barbados[18] (CFPSB). The two Frameworks are described below.

2.3.1 GREEN ECONOMY COMPETENCY FRAMEWORK

Competencies are understood as a combination of knowledge, skills and attitudes that enable successful task performance and problem solving. Weik et al[19] identified four types of competencies needed for advancing an inclusive green economy:

1. **Transformational Competencies:** People with transformational competencies are able analyse complex systems across different domains and scales. They are long-term/future-oriented and anticipate harmful unintended consequences for future generations. Transformational competencies are key for any initiative that aims to reframe existing policies and structures around sustainability.

2. **Technical/Professional Competencies:** Technical knowledge and skills are required to implement specialised policy tasks like designing a feed-in tariff or subsidy scheme, often at the operational level. However, technical skills are also needed at other levels. For example, for an effective agenda- setting process, it would be important to have a team of technical experts that have the ability to run an economic model that shows the impacts of different investment and policy decisions and tests the plausibility of long-term development goals.

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[16] *Supra*, fn 11.

[17] Arnim Wiek, Lauren Withycombe, Charles Redman (2010): Key Competencies in Sustainability: A Reference Framework for Academic Programme Development.

[18] https://mps.gov.bb/Learning_Development/pdfs/Competency%20Framework%20Revision%204.0.pdf

[19] *Supra*, fn 14.

3. **Management Competencies:** Management competencies include supervisory and delegation skills. People with management skills can oversee the effective implementation of a green policy measure, such as a sustainable public procurement system. They are able to build an enabling environment for progress and change, by helping to create the space within which concrete green economy action can take place. They also ensure that deadlines are met and that results are monitored and evaluated.

4. **Participatory Competencies:** Participatory or relational skills are required to promote and sustain cooperation, ownership and action. A person with participatory skills is able to create a welcoming and engaging environment that brings people and organizations together, encourage individuals to express diverse views, create consensus and build ownership over decisions made. In green economy policy context participatory skills are needed at all levels, from coalition-building around a new development agenda to involving stakeholders in the design of a specific incentive mechanism.

2.3.2 COMPETENCY FRAMEWORK FOR THE PUBLIC SERVICE OF BARBADOS

The CFPSB was also considered in the development of requisite competencies for the Green and Blue Learning Needs. The Barbados framework[20] states that competencies are the skills, knowledge and behaviours that lead to successful performance outcomes. The desired outcome for the national public service is excellence in innovation, service and leadership.

The CFPSB provides guidelines for the following bands of employment:

1. Executive Leadership,
2. Senior Management,
3. Middle Management (Administrative & Technical Officers), and
4. Non-Managerial.

The CFPSB identifies three high-level leadership competencies - Management Competencies, Core Competencies and Professional Competencies:

[20] *Supra*, fn18.

1. **Management competencies** requires members of the service to have the capacity to thinking strategically, manage people and & teamwork, manage change, make decisions and manage knowledge.

2. **Core competencies** requires that civil servants are excellent communicators, promote personal development, get the best from others, achieve value for money and deliver output at pace

3. **Professional competencies** relate directly to job roles in each separate ministry. The Barbados Government has invited each ministry to produce five competencies and practical relevance to that entity.

On reviewing the two competency frameworks, it was noted that the GECF's transformational competencies were similar to those described in the CFPSB as Management Competencies *for executive leadership*, and GECF's management competencies were similar to CFPSB's Management Competency *for middle management*. The GECF participatory competencies aligned with CFPSB's core competencies. Both frameworks addressed the need for Professional/Technical competencies.

Given the focus on strengthening government capacity, the GBELNA utilised the Competency Framework for the Public Service of Barbados[21] (CFPSB) to categorise the knowledge, skills and behaviours identified by those interviewed. The CFPSB is shown in Figure 4.

[21] *Supra*, fn 18.

Figure 4: The Competency Framework for the Public Service of Barbados.

The CFPSB was also used to map learning needs identified in the D-SA. Use of the CFPSB in developing a GE Competency Framework for policy technocrats can also allow for the integration of GE within the Government's existing performance appraisal system. GE policy technocrats can therefore re-assess required knowledge, skills and behaviours on a periodic basis.

3.0 FINDINGS: DEMAND SIDE ANALYSIS

3.1 THE GREEN AND BLUE ECONOMY LEARNING NEEDS ASSESSMENT

DEMAND SIDE SURVEY

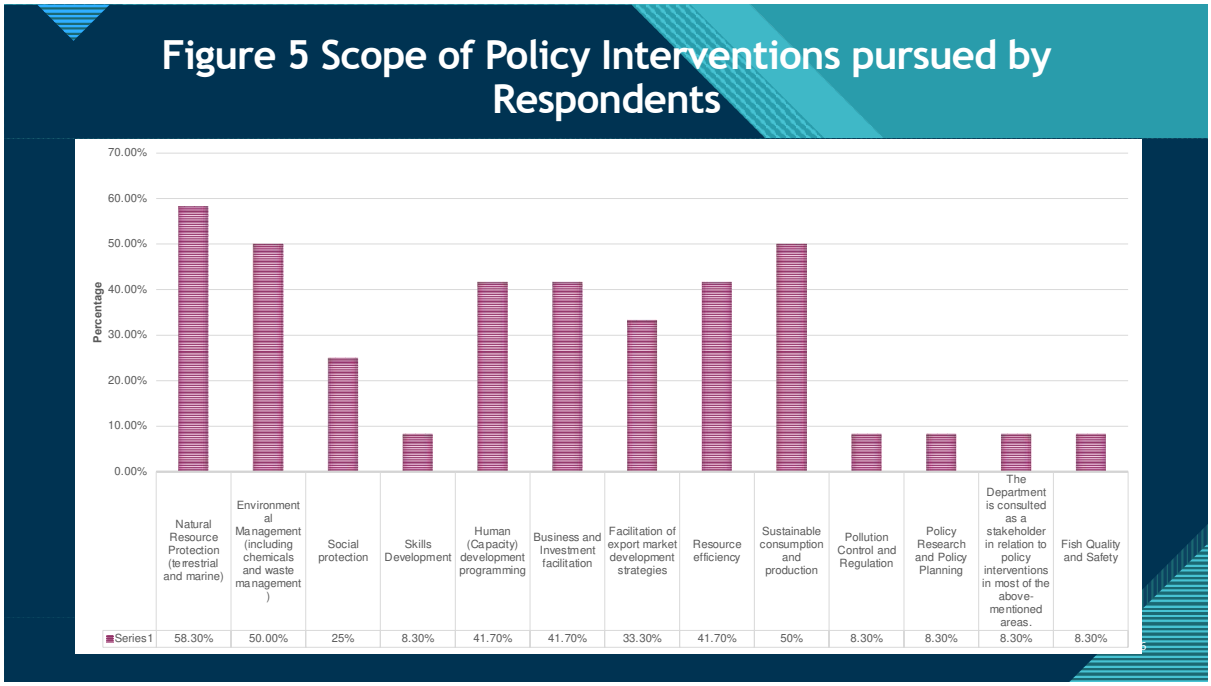
Of the 30 online surveys administered, there were 12 responses. The respondents represented the following organisations

- Ministry of Labour and Social Partnership Relations,
- Ministry of Finance, Economic Affairs and Investment,
- Ministry of Environment and National Beautification (MENB),
- Export Barbados (formerly Barbados Industrial Development Corporation),
- Coastal Zone Management Unit,
- Fisheries Division,
- Economic Affairs Division,
- Consultant (Tourism Policy)
- Caribbean Community Climate Change Centre,
- Policy Research, Planning and Information Unit (MENB),
- Environmental Protection Department, and
- Prime Minister's Office, Advisor.

The organization types included central ministries, departments, research and planning units, statutory corporations, regional organisations and consultancies. The main 'sectoral and resource use' focus of respondents included:

i. Fisheries
ii. Agriculture
iii. Tourism
iv. Energy
v. Human settlement and housing
vi. Integrated Coastal Zone Management
vii. Environment
viii. Transport and infrastructure, and
ix. Manufacturing

The scope of policy interventions made by the respondents are shown below (Figure 5), with the majority (n=7) engaged in natural resource protection, followed by sustainable consumption and production, and environmental management (both n=6). One agency indicated being engaged in all policy intervention areas identified.



When asked whether their agencies have integrated any green/blue economic outcomes in its policies, plans or programme execution, 75% responded positively. The distribution of the nine (9) respondents per the specified policy outcome options are shown below (Figure 6). Of note and particular interest, is that none of the agencies specified 'poverty reduction' as a targeted policy outcome.

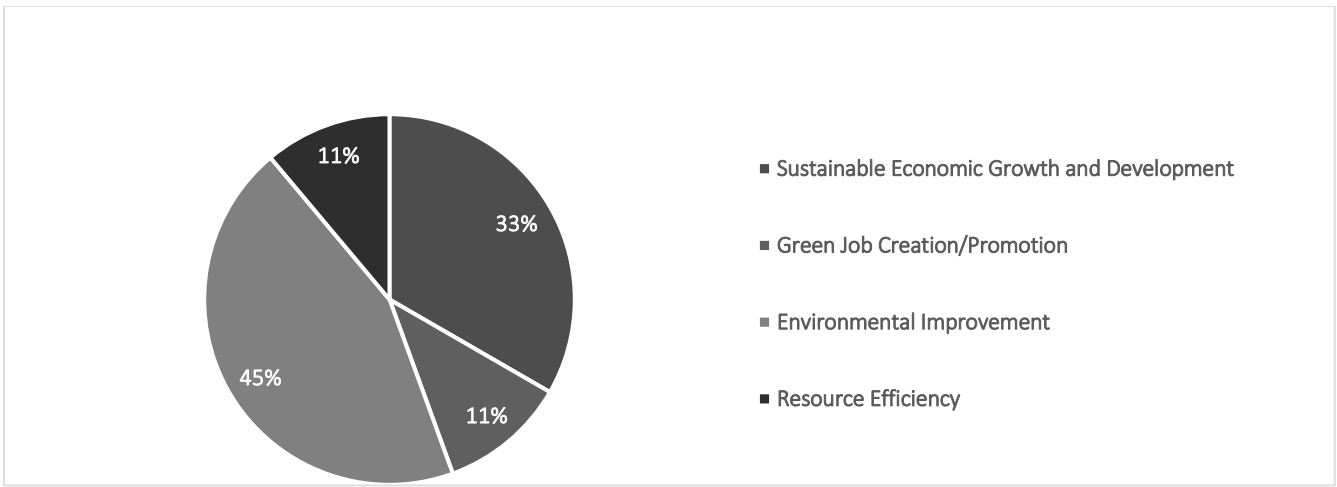


Figure 6: Green and Blue Economy Priority Policy Outcomes Identified by Government Agencies

Several examples highlighting the result of integrating green and blue economy outcomes were presented. They included:

- Shoreline stabilization and enhancement for public access and general use and conservation of sea turtles and coastal habitats through indirect improvement in water quality;
- Development of the Roofs-to-Reefs programme which is an integrated resilience programme that addresses adaptation and mitigation strategies from the perspective of making vulnerable persons roofs more resilient to category four hurricanes, and preserving the coral reefs from damaging nutrients;
- Improved treatment for wastewater reuse;
- Water Reuse Policy and the Bridgetown and South Coast Water Reclamation Projects;
- The UNDP Small Grants Programme- A nexus for Sustainable Livelihoods, Poverty Reduction and the Green Economy;
- Harrison's Cave redevelopment and local green economic development;
- The GEF UNIDO Project that established BLOOM Cleantech Centre- that supports startups and entrepreneurs;
- Establishment of the Caribbean Community Climate Centre (CCCCC) was established to assist the Region's response to climate change;
- The integration of Photo-voltaic cells on fishing vessels; and
- Use of solar energy power on industrial buildings to help reduce cost of energy to manufacturers.
- The Sugar Economy of Barbados- A Circular Economy best practice.
- The green economy potential of local community-based gastronomic tourism- the case of the Grapefruit and Molasses foodies

Respondents were asked to specify whether their organization experienced any challenges within any of the phases of the policy cycle. The majority of the respondents indicated the policy implementation phase (n=6) followed by policy monitoring and evaluation phase (n=5) (see Figure 7).

Examples of challenges are show below (Figure 8).

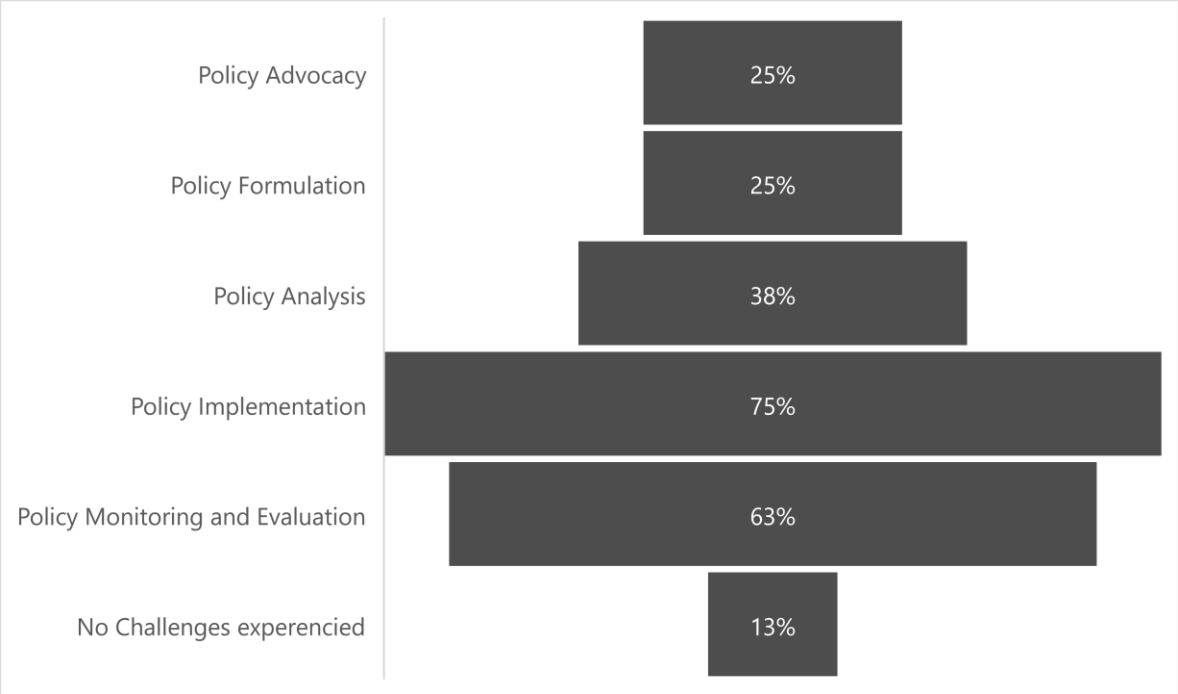


Figure 7: Challenges Experienced by Agencies at Various Stages of the Green and Blue Economy Policy Cycle.

Figure 8: Examples of Challenges Experienced by Agencies Pursuing Green and Blue Economy Policy Outcomes

Interviewees were also asked generally, to specify knowledge, skill and behaviour requirements. Additionally, they were asked to indicate whether knowledge, skill and behaviour interventions were not available, and/or, require strengthening in their organisations. Notably, available and required behaviour submissions were limited. Follow-up interviews were held for elaboration. The combined knowledge and skills requirements identified by respondents are listed in Appendix 8. Those requirements were further synthesized and presented below (Table 1). Behaviour requirements are included at Table 2.

Table 1: Synthesis of Knowledge and Skill Requirements and accompanying frequencies emerging from the Demand Side Survey

1. Building Climate Resilience in a Green and Blue Economic Transition
2. Communication
3. Economics (5)
4. Evidence-based Policy Design and Analysis/ Bridging Science and Policy (19)
5. Finance for a Resilient Green and Blue Economy (4)
6. Green Economy in the context of Sustainable Development
7. Green Technology, Resource Efficiency and Circular Economy (10)
8. Just Transition (3)
9. Legal, Institutional and Governance Dimensions of the Green and Blue Economy (5)
10. Management (2)
11. Natural Resources Management (2)
12. Ocean Management
13. Project Management (3)
14. Stakeholder Engagement and Inclusion (3)
15. Sustainability in the Built Environment, Heritage Conservation and Management (4)

Table 2: Green Economy Behaviour Requirements Identified by Policy Technocrats in the GBELNA Demand Side Survey

Employs Adaptive Management techniques	Promotes Gender equality
Commitment to Continual Improvement (Process)	Strong Intercultural Communication skills
Commitment to Continuing Professional Development	Highly capable of Managing or Resolving Conflict
Commitment to Inter-generational collaboration	Willingness and Capable of Mobilising Resources
Commitment to Teambuilding	Exercise high degree of political intelligence

Committed to Bridge Science and Policy	Effective Problem Solver
Exercises Critical Thinking	Demonstrates Strategic Thinking
Effective Communicator	Demonstrates Systems Thinking
Exercise high degree of emotional intelligence	Takes initiative
Commitment to Management Improvement	Willingness to work across disciplines
Effectively Manages Change	Demonstrate Entrepreneurship

The respondents were also asked to indicate whether they believed UWI-CH offered programmes that could satisfy/meet their knowledge, skill and behaviour requirements. The results are shown below (Table 3).

Table 3: Views on UWI_CH Programme Capacity to Meet Knowledge, Skills and Behavioural Requirements of Government Agencies

REQUIREMENT	YES %	NO %
Knowledge	41.7	58.3
Skills	50	50
Behaviour	41.7	58.3

Examples of programmes meeting knowledge, skills and behavior requirements were provided by respondents are show in Table 4.

Table 4: Examples of UWI-CH Programmes Offerings Identified by Respondents Meeting Knowledge, Skills and Behavior Requirements

KNOWLEDGE	SKILLS	BEHAVIOUR
• Chemistry • Economics • Law • Natural Resource Management • Policy analysis • Project Management • Renewable Energy Management	• Economics • Environmental economics • Financial and Business Economics • Environmental quality monitoring. • Middle and senior management • Project management, • Renewable Energy Management • Research Methods • Statistical methods	• Committed to Management improvement • Commitment to team building • Effective Communication • Entrepreneurship • Managing Change

Interviewees were also asked to indicate the type(s) of competency-based certification programmes they thought necessary for the development of their staff members in their organisations. The results are depicted below (Figure 9):

Certificate-based Short/Intensive courses were largely preferred (91.7%), followed by Postgraduate Diplomas (66.7%) and thereafter Diplomas (Undergraduate) (58.3%).

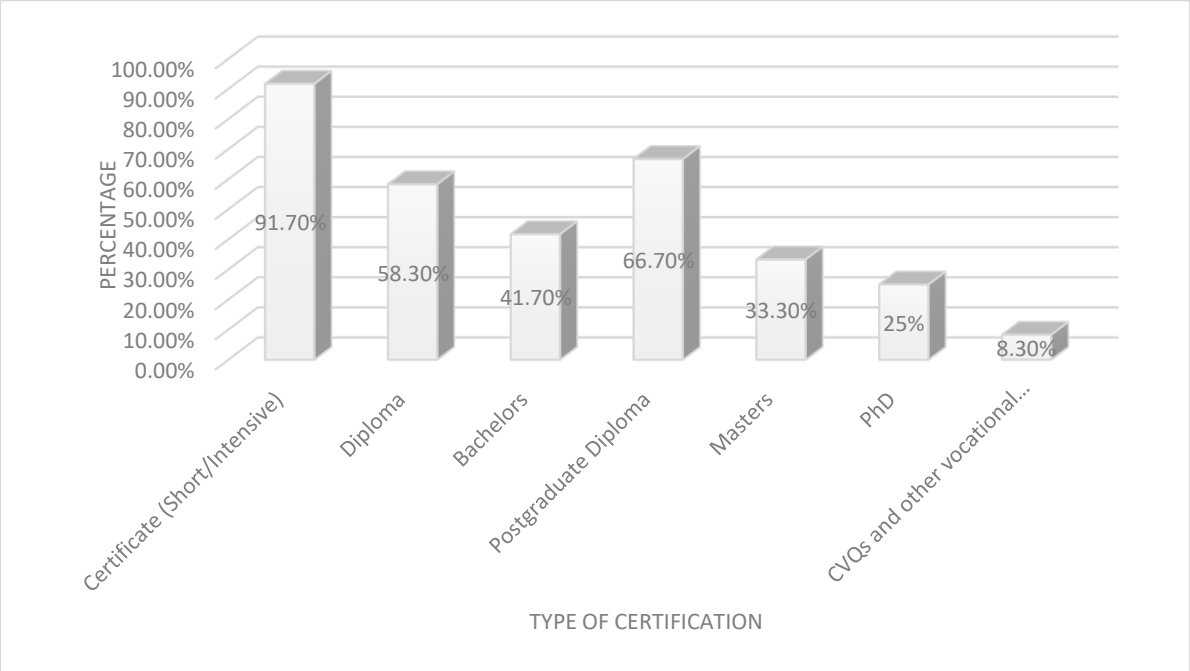


Figure 9: Types of Competency-Based Certification Needed for Staff Development

3.1.2 STAKEHOLDER DIALOGUES/FOCUS GROUPS: UWI-CAVE HILL GREEN ECONOMY 3E TALKS

Though a wide range of issues and challenges were discussed by participants, some topics recurred throughout the three (3) sessions. Those issues were:

1. The need for a holistic approach to managing a Green Economy Transition in SIDS;
2. The lack of focus on, and the need to address, the social dimension of a Green Economy Transition;
3. The importance of identifying winners and losers in a Green Economy Transition;
4. The need to protect vulnerable groups in a green and blue economy transition;
5. The need for effective Just Transition programmes including accommodating low-skilled workers, social protection buffers, and developing skills for labour dispute settlement

6. The need to address poverty reduction in Green Economy Transition programmes;
7. The lack of effective data, statistics, indicators and evidence-based systems to support effective Green Economy policy design;
8. The lack of effective data, statistics, indicators and evidence-based systems to support monitoring and evaluation of Green and Blue Economy transition;
9. The need to understand and utilise international financial frameworks, including environmental vertical funds such as the GEF and GCF, to support a Green Economy Transition;
10. The lack of dedicated and institutionalised continuing professional development programmes to support technocrats involved in green and blue economy transition;
11. Overcoming siloed approaches to planning; and
12. The lack of interdisciplinary and cross-sectoral mechanisms to support green and blue economy transition programmes.

A number of enabling knowledge and skills to support the green and blue economy policy cycle were also identified:

1. Designing Just Transition programmes;
2. Mobilizing resources and accessing environmental vertical funds;
3. Designing evidence-based systems to support effective green economy policy design;
4. Utilising existing national statistical and information tools (such as the CALC survey, national census and labour information system) to support green and blue economy policy design;
5. Integrating Circular economy and resource efficiency in sectoral planning, including energy and fisheries;
6. Designing stakeholder driven and inclusive green and blue economy policies;
7. Legal dimensions of a green economy transition;
8. Designing effective communication programmes for a Green Economy transition;
9. Undertaking natural resource valuation techniques;
10. Mainstreaming climate adaptation in SIDS Green and Blue Economy transition programmes;
11. Governance of the Economic Exclusive Zone in SIDS; and
12. Engaging effectively in regional and international policy processes.

A range of general policy skills were also confirmed as presented in the survey findings including policy analysis; cost effective analysis; cost benefit analyses; needs assessment; international advocacy and negotiations in the context of designing international policy and financing frameworks; project management; and economics for non-economists.

Several behaviour requirements were surmised from the 3E Talk series including:

1. Ability to interact with stakeholders and clients from varied backgrounds;
2. Willingness to promote and facilitate integration, interdisciplinary and cooperative approaches;
3. Exercise effective political intelligence;
4. Effective communication; and
5. Exercise strong evidence-based analytical capabilities.

Additionally, there was also a call for the design of SIDS-relevant Green and Blue Economy Case studies to support green learning programmes. The fisheries and energy sectors were the subject of the discussions in this regard.

Beyond learning needs, participants expressed the desire for a facility to provide technical policy support to Barbados and SIDS governments. The proposed SIDS-SIDS Green and Blue Economy Knowledge Transfer Hub Economy was identified as the mechanism in this regard.

There were also several institutional design considerations proffered by participants for capacity building programmes including:

1. There is a need to focus capacity interventions that enable a transition towards a Green Economy in a SIDS-specific context;
2. The need to ensure coherence and synergies between supply side institutions (policy and training) and persons displaced by green economy policies;
3. There is the opportunity to design continual professional development programmes and developing toolkits for Green Economy policy technocrats. Cooperative models, study tours and work placements should be utilized;
4. Interdisciplinary and integrated approaches to Green Economy policy and capacity development were deemed important;
5. There is a preference for short modular courses- this is consistent with the survey results;
6. Periodic institutional review and strengthening of policy and training institutions are required to support green and blue economy training programmes; and
7. There is need to expose local green and blue economy technocrats to international sustainable development policy frameworks and practice. Again, SIDS regional and international cooperative programmes should be considered.

Based on the outputs of the survey and focus group discussions, the stakeholder learning needs were surmised in Table 5.

Table 5: Summary of Learning Needs arising from Demand Side Analysis of GBELNA

Learning Need Categories from D-SA Survey	**Learning Need Categories from D-SA Dialogues**
Building Climate Resilience in a Green and Blue Economic Transition	Mainstreaming climate adaptation in SIDS Green and Blue Economy transition programmes;
Communication	Designing effective communication programmes for a Green Economy transition;
Economics (5)	
Evidence-based Policy Design and Analysis/ Bridging Science and Policy (19)	Designing evidence-based systems to support effective green economy policy design;
Finance for a Resilient Green and Blue Economy (4)	Mobilizing resources and accessing environmental vertical funds;
Green Technology, Resource Efficiency and Circular Economy (10)	Integrating Circular economy and resource efficiency in sectoral planning, including energy and fisheries
Just Transition (3)	Designing Just Transition programmes
Legal, Institutional and Governance Dimensions of the Green and Blue Economy (5)	Legal dimensions of a green economy transition;
Management (2)	
Natural Resources Management (2)	Undertaking natural resource valuation techniques;
Ocean Management	Governance of the Economic Exclusive Zone in SIDS
Project Management (3)	
Stakeholder Engagement and Inclusion (3)	Designing stakeholder driven and inclusive green and blue economy policies;
Sustainability in the Built Environment, Heritage Conservation and Management (4)	
Green Economy in the context of SIDS Sustainable Development	Engaging effectively in regional and international policy processes.

4.0 FINDINGS: SUPPLY SIDE ASSESSMENT

UWI-CH is an accredited university offering postgraduate and undergraduate courses via seven faculties, some of which have various, departments, centres and research units. UWI-CH offers in excess of 500 programmes.

4.1 KEY INFORMANT INTERVIEWS

Eight (8) key informants were interviewed on the supply side. They all indicated that they had no knowledge of the Paris Summary Statement on Learning for an Inclusive Green Economy but believed they were aware and understood the concepts of the green and blue economy. In particular the CERMES of the Faculty of Science and Technology was viewed by most interviewees as the natural champion to lead green and blue economy learning among existing units in the UWI-CH.

Only three (3) faculty members stated that the green economy and the blue economy was mentioned explicitly in their programmes – the Centre for Professional Development and Lifelong Learning, the Department of Economics of the Faculty of Social Sciences and CERMES of the Faculty of Science and Technology. **With the exception of CERMES and CPDLL, no other representative indicated the deliberate design and delivery of courses that were intended to service green and blue economy learning needs, and address green and blue economy policy priorities and outcomes**. It was however noted that all interviewees indicated that the concept of sustainable development was a part of their course delivery. Interviewees – especially those outside of the Faculty of Science and Technology, were keen to highlight their focus on the environment pillar of sustainable development..

The courses offered by the CERMES were developed to make a significant contribution to the sustainable development of Caribbean SIDS and beyond. The CERMES representative stated that they embrace the concepts of green and blue economy – in particular the latter. CERMES indicated that there was no national definition of the blue economy and no guidance was provided by government in this regard. More guidance was available where the concept of a green economy was concerned as there is a definition and a detailed scoping study[22], which could be utilised as a guide.

When questioned regarding the extent to which there was collaboration across the university in delivering the aspects of their courses that were relevant to green and blue economy learning, faculty members

[22] *Ibid*, fn 2.

(focus areas gender, politics and government, as well as law) indicated that they engaged faculty members from CERMES as guest lecturers, and collaborated on research and project work. Student Entrepreneurial Empowerment Development's (SEED) Programme Coordinator stated that the resource persons from within the university, the private and other members of non-governmental organisation sectors were engaged to address specific sustainability needs as required by student entrepreneurs in the incubator course.

All interviewees were open to a greater degree of interdisciplinary collaboration within existing courses. There was also a general willingness to increase course offerings that were relevant to green and blue economy (in the context of their programmatic focus).

Faculty members highlighted hindrances such as a lack of funding to support course development and at times low student enrollment levels[23].

Beyond teaching, the UWI-CH faculty members are important resource persons to the GOB and play a significant role in undertaking a number of consultancy-based activities that are vital to the transitioning to a green and blue economy. Examples of consulting projects in this regard identified by faculty members include, *inter alia*:

- **Institute of Gender and Development Affairs – Nita Barrow Unit**
    - *The BLOOM Project:* Building Climate-Smart Livelihoods through Opportunity, Outreach & Mentorship – a mentorship programme for marginalized youth housed at the Government Industrial Schools. The project aims to support gender-just youth employment and entrepreneurship avenues within the growing field of climate-smart technologies, in order to improve possible life outcomes. The project was undertaken by the UWI-CH's Institute of Gender and Development Studies: Nita Barrow Unit and the Faculty of Science and Technology and the British High Commission – Bridgetown.

- **CERMES:**
    - *FAO – CC4FISH Climate Change Adaptation in the Eastern Caribbean Fisheries Sector Project:* This project aims to increase resilience and reduce vulnerability to climate change impacts in the Eastern Caribbean fisheries sector through the introduction of

[23] Department of Economics.

adaptation measures in fisheries management and capacity building of fisherfolk and aquaculture farmers.

4.2 COURSE AUDIT

After reviewing course/programmes offered by UWI-CH, a matrix (Table 6) was developed to show existing courses which addressed the policy outcomes explicitly or implicitly.

Courses reflecting green and blue economy outcomes were found in the following areas:

i. The Faculty of Humanities and Education with regard to Philosophy and History;
ii. The Faculty of Social Sciences in relation to Management Studies, the Department of Economics, the Department of Government, Sociology, Social Work & Psychology, the Centre for Professional Development and Lifelong Learning (CPDLL), the Institute for Gender and Development Studies, and Cave Hill School of Business;
iii. The Faculty of Law;
iv. The Faculty of Science & Technology with respect to the Centre for Resource Management and Environmental Studies

In total there were 55 courses that expressly contained at least one of the selected policy outcomes. No single course reflected all five outcomes; while there were two courses that embodied four of the five policy outcomes, namely Resource Economics, and Climate Change Impacts-Mitigation and Adaptation. In addition 11 courses contain three policy outcomes; 28 contained two policy outcomes; and 14 contained one. See Figure 10.

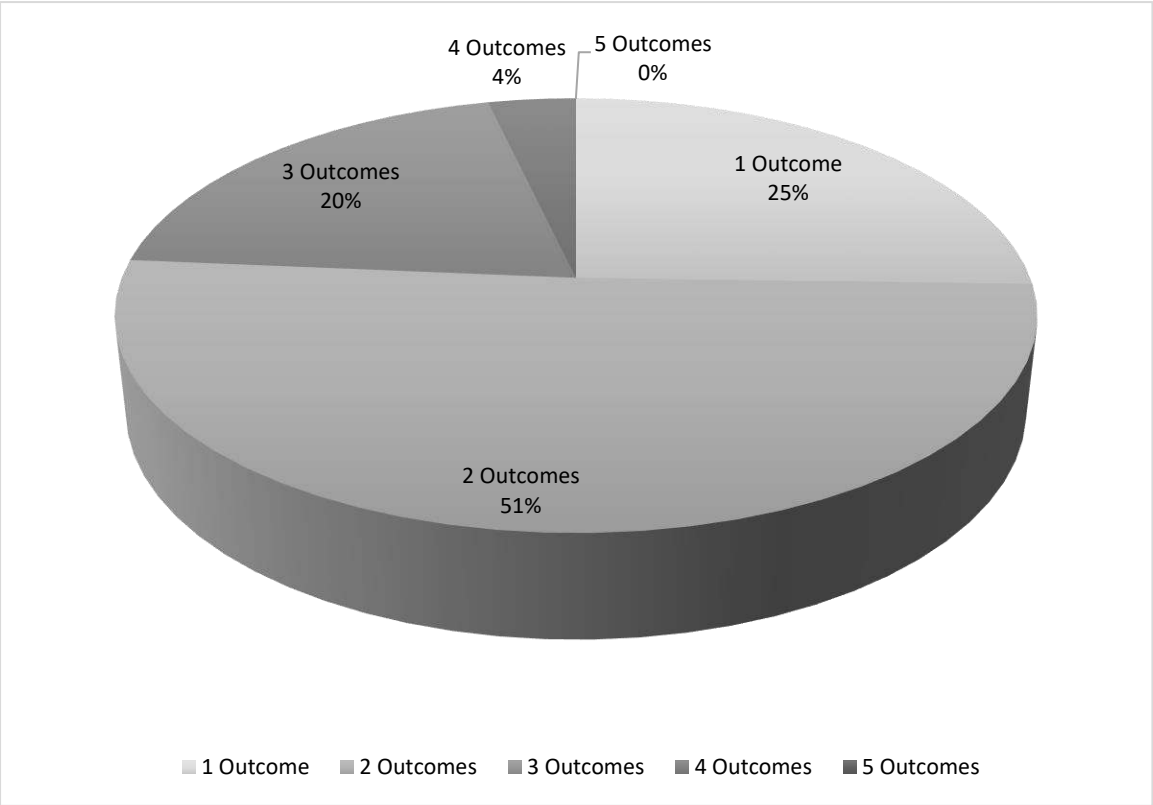


Figure 10: Number and Distribution of Courses Exhibiting GE Outcomes

The two most prominent outcomes were sustainable growth/sustainable development and environmental improvement. Green jobs creation did not feature as a policy outcome in any of the courses reviewed. See Figure 11.

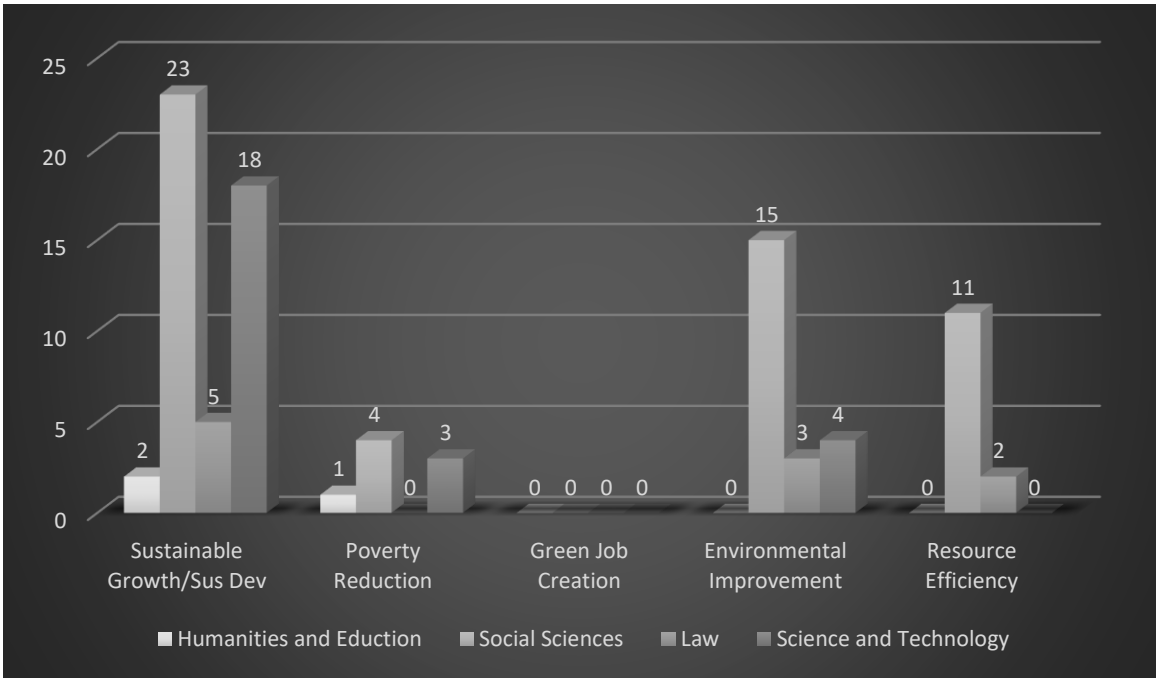


Figure 11: Distribution of GE Policy Outcomes by Courses in Selected Faculty at UWI-CH

Regarding, level of study, 15 undergraduate courses articulated green and blue economy policy outcomes in their design; while 40 were postgraduate courses did the same. Of the postgraduate courses 15 were short courses.

As shown in Table 6 CPDLL courses listed as addressing green and blue economy policy outcomes identified are varied and delivered as modules/short courses (a form highly desired by participants in the D-SA).

CERMES in particular offers four specialization streams in its MSc in Natural Resource and Environmental Management inclusive of courses relevant to green economy policy outcomes. The specialisations are:

1. Tropical, Coastal and Marine Resources;
2. Climate Change;
3. Water Resources; and
4. Land Management and Environmental Resilience.

The Centre will also be introducing an MSc. in Renewable Energy in the coming academic year[24].

On examining programmes across the campus, CERMES' MSc. in Natural Resource Management has the highest concentration of courses contributing to green and blue economy learning.

[24] Details for this programme are not yet available.

Table 6: Existing Courses Relevant to Green and Blue Economy Learning which addressed the policy outcomes identified in the Green Economy Scoping Study and explicitly or implicitly discussed the concepts of Sustainable Development, Green Economy and Blue Economy

FACULTY	CENTRE/ DEPARTMENT/ INSTITUTE/ SCHOOL	COURSE	GREEN & BLUE ECONOMY POLICY OUTCOMES[25]					LEVEL OF STUDY[26]
			1	2	3	4	5	
Humanities and Education	**Philosophy**	1. PHIL3110: Environmental Ethics	x	x				U
	History	2. HIST2810: Global and Environmental Issues (New)	x					U
Social Sciences	**Management Studies**	3. Student Entrepreneurial Empowerment Development (SEED) – Incubator Course	x	x		x	x	U
		4. MGMT 3089 – Social Entrepreneurship for Sustainable Development	x					U
		5. TOUR 3001 – Sustainable Tourism	x					U
	Department of Economics	6. ECON 2002 – Intermediate Macroeconomics I	x					U
		7. ECON 3010 – Finance and Development	x					U
		8. ECON 3034 – Resource & Environmental Economics	x			x	x	U
		9. ECON 3043 – Economics of Tourism	x					U
		10. ECON 3051 – Development Economics	x			x	x	U
	Department of Government, Sociology, Social Work & Psychology	11. GOVT 3025 – International Environmental Politics	x			x		U
		12. SOCI 2013 – Caribbean Social Development	x	x				U

[25] Policy outcomes identified in course objectives, content and outcomes: 1. sustainable growth/sustainable development; 2. poverty reduction; 3.green jobs creation; 4. environmental improvement; 5.resource efficiency.

[26] Level of study: Undergraduate (U); Postgraduate (P); Short Course and Postgraduate (S/P).

FACULTY	CENTRE/ DEPARTMENT/ INSTITUTE/ SCHOOL	COURSE	GREEN & BLUE ECONOMY POLICY OUTCOMES[25]					LEVEL OF STUDY[26]
			1	2	3	4	5	
	Centre for Professional Development and Lifelong Learning (CPDLL)	13. Incorporating Sustainability Goals in Projects	x			x	x	S
		14. Social, Economic, Political, Environmental Impact Assessment	x			x	x	S
		15. Trade and the 2030 Sustainable Development Goals	x	x				S
		16. Green Logistics	x			x		S
		17. Trade and Natural Disasters	x			x		S
		18. Living a Wild Life Part 1: Illicit Trade, Money Laundering and Border Security				x		S
		19. Living a Wild Life Part 2: Wildlife, Zoonoses Pandemics and One Health				x		S
		20. Biosecurity: More than meets the eye[27]				x		S
		21. Cooling Buildings Thoughtfully	x			x	x	S
		22. The Blue Economy: Blue Resources[28]	x				x	S
		23. Green Technology and Renewable Energy	x			x	x	S
		24. Carbon Management	x				x	S
		25. Waste Water management	x			x	x	S
	Institute for Gender and Development Studies[29]	26. GEND 6103 Gender Analysis for Development Policy and Planning	x	x				
	Cave Hill School of Business	27. ISO50001 Energy Management Systems Training	x			x	x	S

[27] This course took the form of a webinar.

[28] Designed in collaboration with the Sir Sridath Ramphal Centre.

[29] Designed in collaboration with the Centre for Professional Development and Lifelong Learning.

FACULTY	CENTRE/ DEPARTMENT/ INSTITUTE/ SCHOOL		COURSE	GREEN & BLUE ECONOMY POLICY OUTCOMES[25]					LEVEL OF STUDY[26]
				1	2	3	4	5	
			28. Multinational Collaboration with International Telecommunications Unit	x					S
Law			29. LAW 3450 Caribbean Environmental Law	x			x		U
			30. LAW 3460 International Environmental Law	x			x		U
			31. Advanced International Environmental Law	x			x		P
			32. LAW 2310 Public International Law I	x				x	U
			33. LAW 2320 Public International Law II	x				x	U
Science & Technology	Centre for Resource Management and Environmental Studies	Core Courses for MSc. Natural Resources Management Programme	34. ENVT 6000 Concepts and Issues for Environmental Managers	x			x		P
			35. ENVT 6001 Introduction to Environmental Planning and Management	x			x		P
			36. ENVT 6100 Environmental Impact Assessment	x	x		x		P
			37. ENVT 6120: Measurement and Analysis in Natural Resource Management				x		P
			38. ENVT 6101: Geoinformatics for Environmental Management				x		P
			39. ENVT 6102 Resource Economics	x	x		x	x	P
		Tropical, Coastal and Marine Resources	40. ENVT 6122: Fisheries Biology and Management	x			x		P
			41. ENVT 6126: Coastal Dynamics and Management	x			x		P
			42. ENVT 6127: Ecology and Management of Coral Reef Systems	x			x		P
			43. ENVT 6255: Disaster Risk and Resilience in Caribbean Tourism	x			x		P

FACULTY	CENTRE/ DEPARTMENT/ INSTITUTE/ SCHOOL		COURSE	GREEN & BLUE ECONOMY POLICY OUTCOMES[25]					LEVEL OF STUDY[26]
				1	2	3	4	5	
		Climate Change	44. ENVT 6130: Climate Dynamics and Modelling				x		P
			45. ENVT 6131: Policy Response to Climate Change	x			x		P
			46. ENVT 6133: Climate Change Impacts: Mitigation and Adaptation	x	x		x	x	P
			47. ENVT 6255: Disaster Risk and Resilience in Caribbean Tourism	x			x		P
		Water Resources	48. ENVT 6220: Water and Wastewater Management	x			x	x	P
			49. ENVT 6230: Water Management and the Environment	x			X		P
			50. ENVT 6236: Hydro-meterological Risks and Water Resource Management	x			X		P
			51. ENVT 6238: Surface and Groundwater Hydrology				X		P
		Land Management and Environmental Resilience	52. ENVT 6235: Soil and Water Conservation	x			X		P
			53. ENVT 6240: Land Use and Environmental Resilience	x			X		P
			54. ENVT 6245: Biodiversity and Protected Area Management	x			X		P
			55. ENVT 6250: Tools for Environmental and Food Systems Analysis	x			X		P

ASSESSMENT OF PROGRAMME/COURSE COVERAGE OF LEARNING NEEDS IDENTIOFIED IN THE DEMAND SIDS ANALYSIS

The SS-A also revealed that the university delivers training relevant to the green and blue economy learning needs emerging from the D-SA. Table 7 is a qualitative assessment of course coverage of required learning needs.

Table 7: Course Coverage By Uwi-Ch Of Recommended D-Sa Learning Needs

STAKEHOLDER-D-SA IDENTIFIED LEARNING NEEDS	COURSE COVERAGE AT UWI-CH
1. SIDS Sustainable Development Policy Context	Some coverage of topics within courses across the faculties but as a specific module.
2. Green Technology, SCP Resource Efficiency and Circular Economy Including Information Technology	No
3. The Policy Cycle for a GE Transition	Extensive list of courses covering the policy cycle. None covering the policy cycle as it specifically related to the green or blue economy.
4. Finance and Resource Mobilisation for a Resilient GE/BE	Not specific to resource mobilization for GE and BE
5. Legal, Institutional and Governance dimensions of a Green Economy Transition	Environmental Law and Intellectual Property law coverage. No legal context for GE transition.
6. Designing Just GE Transition programmes and Social dimensions	No.
7. Evidence-Based Policy Design and Analysis for a Green Economy Transition including GE modelling	Statistics and indicators covered. Not specifically for GE transition Frameworks
8. EEZ Governance in SIDS-Sustainable Utilization and Management	Coverage of all related learning elements
9. Building Climate Resilience in a Green and Blue Economic Transition	Climate Change specialization in the MSc. for Natural Resources Management but not delivered in the context of G.E. strategies and policies.

STAKEHOLDER-D-SA IDENTIFIED LEARNING NEEDS	COURSE COVERAGE AT UWI-CH
10. Sustainable Energy Technologies	M.Sc. Renewable Energy to come on stream. Related Learning elements not yet available.
11. Natural and Built Heritage Conservation and the Green Economy/ Managing Heritage in GE Transition	No
12. Designing stakeholder driven and inclusive green and blue economy policies;	No
13. Designing effective communication programmes for a Green Economy transition	No
14. Institutional Needs Analysis and Development in support of GE/BE	No
15. Skills for Natural Resource Valuation	Yes
16. Establishing Monitoring and evaluation programmes for GE policies	Monitoring and Evaluation but not specifically focusing on GE policies
17. Negotiation skills	Yes
18. Project management	Yes
19. Procurement (Sustainable)	No
20. Cost Effective Analysis Skills	Yes
21. Cost Benefit Analysis Skills	Yes. Not specifically related to GE Transition
22. Sustainability Impacts and the GE Transition	Yes. Not specifically related to GE Transition
23. Economics for non-economists	Yes
24. Finance for non-finance specialists	Yes

The SS-A revealed that UWI-CH is already conducting a number of courses relevant to GBEL There is however scope to expand courses and programmes supplied to government technocrats who wish to further develop knowledge and skills in areas identified in the D-SA.

Equally important, are the areas identified where there are no current course offerings. These gaps offer opportunity for new course development. The gaps identified were:

i. **Green Technology, SCP Resource Efficiency and Circular Economy Including IT**

ii. **Designing Just GE Transition programmes and Social dimensions**

iii. **Natural and Built Heritage Conservation and the Green Economy/ Managing Heritage in GE Transition**

iv. **Designing stakeholder driven and inclusive green and blue economy policies**

v. **Institutional Needs Analysis and Development in support of GE/BE**

vi. **Procurement (Sustainable)**

Finally, the Joint Expert team also mapped the learning needs and recommended competency against the Government of Barbados' public sector competency framework. See Table 8 overleaf. The results are instructive for the design of capacity building interventions. for public sector technocrats. Addressing the learning needs identified in this context will in principle be aligned to government's competency framework.

Table 8: Stakeholder Learn Needs (Knowledge And Skills) Mapped Against The Competency Framework Of The Public Sector Of Barbados

STAKEHOLDER-IDENTIFIED LEARNING NEEDS	KNOWLEDGE	SKILL	GOB COMPETENCY CATEGORIES		
			PROF	MGT	CORE
1. SIDS Sustainable Development Policy Context	✓		✓		
2. Green Technology, SCP Resource Efficiency and Circular Economy Including IT	✓	✓	✓		✓
3. The Policy Cycle for a GE Transition	✓		✓	✓	
4. Finance and Resource Mobilisation for a Resilient GE/BE	✓	✓	✓	✓	
5. Legal, Institutional and Governance dimensions of a Green Economy Transition	✓		✓		
6. Designing Just GE Transition programmes and Social dimensions	✓	✓	✓	✓	
7. Evidence-Based Policy Design and Analysis for a Green Economy Transition including GE modelling	✓	✓	✓	✓	
8. EEZ Governance in SIDS-Sustainable Utilization and Management	✓	✓	✓		
9. Building Climate Resilience in a Green and Blue Economic Transition	✓	✓	✓		
10. Sustainable Energy Technologies	✓		✓		
11. Natural and Built Heritage Conservation and the Green Economy/ Managing Heritage in GE Transition	✓	✓		✓	
12. Designing stakeholder driven and inclusive green and blue economy policies;		✓	✓		

STAKEHOLDER-IDENTIFIED LEARNING NEEDS	KNOWLEDGE	SKILL	GOB COMPETENCY CATEGORIES		
			PROF	MGT	CORE
13. Designing effective communication programmes for a Green Economy transition		✓			✓
14. Institutional Needs Analysis and Development in support of GE/BE		✓		✓	
15. Skills for Natural Resource Valuation		✓	✓	✓	
16. Establishing Monitoring and evaluation programmes for GE policies		✓		✓	
17. Negotiation skills		✓		✓	
18. Project management	✓	✓		✓	
19. Procurement		✓		✓	
20. Cost Effective Analysis Skills	✓	✓		✓	
21. Cost Benefit Analysis Skills	✓			✓	
22. Sustainability Impacts and the GE Transition	✓	✓		✓	
23. Economics for non-economists	✓	✓		✓	
24. Finance for non-finance specialists	✓	✓		✓	

5.0 DISCUSSION AND RECOMMENDATIONS

5.1 METHODOLOGY

The Barbados GBELNA was based on the **PAGE Learning for an Inclusive Green Economy: Assessing Priorities and Steering Action**.[30] There were several modifications in the design and throughout the assessment. The latter was largely driven by the ongoing COVID-19 impact and the need to incorporate virtual/online engagements over the use of in-person activities.

Specific to the D-SA surveys, there were several noteworthy and instructive responses, including:

- Most respondents indicated incorporating green/blue economy policy outcomes in the work of their agency;
- No respondent specified poverty reduction as a targeted policy outcome;
- The greatest challenges in the policy cycle were witnessed in the policy implementation, and policy monitoring and evaluation phase;
- Articulated learning needs were specific to both green/blue economy policy issues, and in related to general policy skills development (no specific to green/blue economy);
- There is a preference for competency-based certification with respect to Short/Intensive Certificates, Postgraduate diplomas, and non-post graduate diplomas (see below in GBELPRO section).

It should be noted that the relatively low response rate (38.7%) of the GBELNA D-SA survey, was also experienced in the online learning needs survey (18%) of the South Africa Green Economy Learning Assessment[31].

The focus groups (**3E UWI Talks**) were able to elaborate on the stakeholder learning needs identified during the D-SA survey. This phase of work was deemed successful in terms of the ratio of invitees-participants, high level of interaction among discussants, and the resulting recommendations.

It is recommended the 3E UWI Talks be further developed and held as an annual professional exchange modality for policy technocrats to discuss emerging contemporary green and blue economy matters. A Community of Practice can be established as an adjunct to support this

[30] PAGE, 2016.

[31] *Ibid.*

intervention. It is recommended that PAGE agencies and development partners be invited to participate in the Community of Practice..

Additionally, both D-SA tools should be employed together for future learning needs assessments.

The initial survey tool used for the S-SA proved to be lengthy and among those interviewed there was a lack of awareness of the Paris Statement of Green Economy Learning. **That knowledge gap should be addressed via Green Economy Professional Development Seminars (GE-PDS) among staff to engage in, or desirous of contributing to green and blue economy learning initiatives. Those seminars should be initiated via the proposed SIDS-SIDS Green Economy Knowledge Transfer Hub (SIDS GE-KTH) . The UNITAR PAGE focal point should be invited to support this endeavor.**

Related, a **Green Economy Training-the-Trainers series** on new and emerging sustainable development policies and models for SIDS including green and blue economy be considered as an adjunct to GE-PDS should be instituted to further assist in bridging information gaps and expand knowledge of faculty.

The development of interdisciplinary Green and Blue Economy case studies should be treated as a priority to support green and blue economy learning programmes including staff "Training-the-Trainers" programmes.

5.2 GREEN AND BLUE ECONOMY LEARNING PROGRAMME (GBELPRO)

The D-SA showed a preference for Certificate-based Short/Intensive courses, Postgraduate Diplomas, and non-Postgraduate Diplomas. These three programme types should form the initial basis for the GBELPRO.

Specific to course content, it is recommended that the following areas be considered for development of **Professional Postgraduate Diploma programmes** in the framework of the GBELPRO:

1. Designing Green Just Transition programmes for Small Island developing States;
2. Circular economy and resource efficiency in Small Island Developing States;
3. Mainstreaming climate adaptation in SIDS Green and Blue Economy transition programmes;
4. Managing Heritage in GE Transition in SIDS and
5. Sustainable Utilisation and Governance of the Economic Exclusive Zone for the Sustainable Development of SIDS.

Every opportunity should be employed to integrated cooperative models, study tours and work placements in those programmes.

In addition, a **SIDS Green Economy Transition Professional Policy Skills Development Certificate Series** of short courses should be designed to meet the expressed learning needs of professionals involved in green and blue economy transition in the context of the GBELPRO.

1. Mobilizing resources and accessing environmental vertical funds for a Green and Blue Economy Transition;
2. Designing evidence-based systems to support effective green economy policy design and analysis in SIDS;
3. Poverty Reduction, Social Inclusion and the Green Economy;
4. Designing stakeholder driven and inclusive green and blue economy policies in SIDS;
5. Mainstreaming Circular economy and SCP strategies in micro, small and medium sized enterprises in SIDS;
6. Designing effective communication programmes to support a Green and Blue Economy transition in SIDS;
7. Designing fiscal policies to support Green and Blue Economy Transition Programmes in SIDS;
8. Legal, Institutional and Governance Dimensions of Green and Blue Economy Transition in SIDS; and
9. Engaging effectively in SIDS regional and international sustainable development policy processes.

Where possible, programme design should integrate behaviour requirements in demonstrable learning outcomes as identified in the D-SA. See Table 9.

Table 9: Recommended Demonstrable Behavioral Learning Outcomes for Inclusion in the GBELPRO

Core	Management	Professional

• Commitment to Continuing Professional Development • Commitment to Inter-generational collaboration • Demonstrates Strategic Thinking • Effective Communication • Effective Problem Solver • Exercise high degree of emotional intelligence • Exercises Critical Thinking • Exhibits strong Intercultural Communication skills • Promotes Gender equality • Takes initiative	• Commitment to Continual Improvement (Process) • Commitment to Management Improvement • Commitment to Teambuilding • Demonstrate Entrepreneurship • Effectively Manages Change • Employs Adaptive Management techniques • Highly capable of Managing or Resolving Conflict	• Commitment to Bridge Science and Policy • Demonstrates Systems Thinking • Exercise high degree of political intelligence • Willingness and Capable of Mobilising Resources • Willingness to work across disciplines

A **"Professional Seminar Series for Green and Blue Economy Practitioners in SIDS"** should also be considered to address general upskilling needs in the following areas:

- **Policy analysis tools**
- **Impact Assessment**
- **Project management Fundamentals**
- **Natural Capital Valuation**
- **Economics for Non-economists and**
- **International advocacy and negotiations in the context of designing international policy and financing frameworks**

The above policy skills should be pursued as a collaboration between the SIDS GE-KTH and other existing UWI-CH units such as the Centre for Professional Development and Lifelong Learning, Faculty of Social Sciences at the Cave Hill Campus.

As referenced above, and immediate next step towards the development of the GBELPRO, is the development Green and Blue Economy Case Studies in SIDS. The examples provided by respondents to the D-SA survey should be considered for the first publication of such.

i. **Sustainable coastal tourism and local livelihood development through integrated coastal zone management;**
ii. **Development of the Roofs-to-Reefs programme-an integrated resilience programme addressing adaptation and mitigation;**
iii. **The environment sector and green job creation in SIDS;**

iv. **Water Reuse Policy through the Bridgetown and South Coast Water Reclamation Projects;**

v. **The UNDP Small Grants Programme- A nexus for Sustainable Livelihoods, Poverty Reduction and the Green Economy;**

vi. **Harrison's Cave redevelopment and local green economic development;**

vii. **The BLOOM Cleantech Centre: Opportunites in enabling and advancing Green and Blue Economy in SIDS;**

viii. **The integration of Photo-voltaic cells on fishing vessels;**

ix. **Use of solar energy power on industrial buildings to help reduce cost of energy to manufacturers.**

x. **The Sugar Economy of Barbados- A Circular Economy best practice;**

xi. **The green economy potential of local community-based gastronomic tourism- the case of the Grapefruit and Molasses foodies; and**

xii. **Fiscal policy and the Green Economic Transition.**

5.3 SIDS GREEN ECONOMY KNOWLEDGE TRANSFER HUB

As highlighted in Volume 1, the SIDS-SIDS Green-Blue Knowledge Transfer Hub is an integral part of the Green-Blue Economy Learning Programme (G-BEL). As agreed by the stakeholders, the SIDS-SIDS Green-Blue Knowledge Transfer Hub, serves as the institutional mechanism through which the G-BEL must be piloted and implemented. In this regard, it has a very important role to play in facilitating, inter alia:

- The extraction of the Green Learning components of the myriad international instruments to Caribbean SIDS have committed to, including from the GEF projects implemented in Caribbean SIDS, and translating them into Green Learning products and processes for integration into formal teaching at the tertiary level.
- The attainment of university-level curricula readiness to support Green and Blue Economy learning in Barbados and Caribbean SIDS and to assist in the realization of that process.
- The enhancement of the capacity of The University of the West Indies, Cave Hill Campus to deliver green and blue economy learning interventions and innovations to address sustainable development policy challenges in Barbados and Caribbean SIDS;

Beyond the focus on learning needs, stakeholders expressed the desire that the Hub will not only provide technical policy and knowledge development support in the area of green and blue economy for Caribbean

SIDS but also for SIDS-Global. This conclusion supports the policy position articulated by the Principal[32] of the UWI-Cave Hill Campus that the Hub must evolve, over time as the **SIDS-Global Green Learning Centre of Excellence.** In the interim, a strategic Building Block, in this regard, should be the **"transitioning**" of the PAGE-Barbados Programme into the Hub.

[32] See the Statement Delivered by the Pro Vice Chancellor and Principal of the University of the West Indies Professor V. Eudine Barriteau, at the Renaming Ceremony for Owen Arthur CARICOM Complex on 10 July 2021, University of the West Indies, Cave Hill Campus, Barbados. The Principal in recognizing that the institution "[…] continues to do sterling work in sustainable development […]" explained that it "wishes to position itself as a Centre of Excellence in relation to the Green Economy […].

7.0 APPENDICES

APPENDIX 1 : STAKEHOLDER'S TARGETED FOR THE DEMAND-SIDE SURVEY

MEMBERS OF THE DESIGNATED PAGE GOVERNANCE MECHANISMS

TITLE	FIRST NAME	LAST NAME	POISTION	AGENCY 1	AGENCY 2	EMAIL
Dr.	Leo	Brewster	Director	Coastal Zone Management Unit	Ministry of Maritime Affairs and Blue Economy	travis.sinckler@barbados.gov.bb
Mr.	Anthony	Headley	Director	Environmental Protection Department	Ministry of Environment and Beautification	Hugh.Sealy@barbados.gov.bb
Dr.	Hugh	Sealy	Special Envoy	Prime Minister's Office	Ministry of Environment and Beautification	Anthony.Headley@epd.gov.bb
Mr.	Travis	Sinckler	Senior Environmental Officer	Policy Planning and Research Information Unit	Ministry of Environment and Beautification	RicardoD.Marshall@barbados.gov.bb
Mr.	Ricardo	Marshall	Project Manager	Project Mangement Coordination Unit	Ministry of Environment and Beautification	Ron.goodridge@barbados.gov.bb
Mr.	Ron	Goodridge	Environmental Officer		Ministry of Environment and Beautification	Ronnie.Griffith@barbados.gov.bb
Mr.	Ronnie	Griffith	Chief Economist	Economic Affairs Division	Ministry of Finance Economic Affairs Division and Investment	Sonia.King@barbados.gov.bb

TITLE	FIRST NAME	LAST NAME	POISTION	AGENCY 1	AGENCY 2	EMAIL
Ms.	Sonia	King	Director	Urban Development Commission	Prime Minister's Office	Cyprian.Yearwood@barbados.gov.bb
Mr.	Cyprian	Yearwood	Evaluation Compliance Officer	Urban Development Commission	Prime Minister's Office	persec@labour.gov.bb
			Permanent Secretary		Ministry of Labour and Social Partnership Relations	srudder@foreign.gov.bb
			Permanent Secretary		Ministry of Foreign Affairs and Foreign Trade	PSMIBI@barbadosbusiness.gov.bb
			Permanent Secretary		Ministry of International Business and Industry	lbrewster@coastal.gov.bb
Mr.	Winston	Bennett	Climate Finance Advisor	Economic Affairs Division	Ministry of Finance Economic Affairs Division and Investment	winstonhbennett@yahoo.com
Ms.	Richelle	Gaskin	Economist	Economic Affairs Division	Ministry of Finance Economic Affairs Division and Investment	Richelle.Gaskin@barbados.gov.bb
Mr.	Avery	Greene	Senior Project Analyst	Public Investment Unit	Ministry of Finance Economic Affairs Division and Investment	Avery.Greene@barbados.gov.bb
Dr.	John	Mwana	Technical Advisor	Barbados Water Authority	Ministry of Energy and Water Resources	john.mwansa@bwa.gov.bb
Mr.	William	Hinds	Chief Energy Conservation Officer	Energy Division	Ministry of Energy and Water Resources	William.Hinds@barbados.gov.bb
Mrs.	Claire	Best	Senior Economist	Energy Division	Ministry of Energy and Water Resources	cbest@energy.gov.bb

TITLE	FIRST NAME	LAST NAME	POISTION	AGENCY 1	AGENCY 2	EMAIL
Mr.	Russell	Armstrong	Director	Rural Development Commission	Ministry of Housing Lands and Rural Development	Russell.Armstrong@barbados.gov.bb
Mrs.	Kelly	Hunte	Senior Housing Planner	Rural Development Commission	Ministry of Housing Lands and Rural Development	Kelly.Hunte@housing.gov.bb
Mrs.	Joyce	Leslie	Director	Fisheries Division		Joyce.Leslie@barbados.gov.bb | fisheries.division@barbados.gov.bb
Ms.	Suzanne	Elder	Research Officer	Policy Planning and Research Information Unit		Suzanne.Elder@barbados.gov.bb
Ms.	Erika	Watson	Programme Officer		Ministry of Labour and Social Partnership Relations	Erika.Watson@barbados.gov.bb | ewatson@labour.gov.bb
Mrs.	Psyche	Burke	Senior Economist		Ministry of Labour and Social Partnership Relations	psyche.burke@barbados.gov.bb | pburke@labour.gov.bb
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Ms.	Lisa	Smith	Statistical Officer	Barbados Statistical Services		LSmith@barstats.gov.bb
Mr.	Lionel	Weekes	Former GESS Chairman	Independent		bpweekes@caribsurf.com
Mr.	Allan	Franklin	Consultant	Consultant		allan_940@hotmail.com
Mr.	Mohammad	Nagdee	Programme Manager			mohammad.nagdee@undp.org

APPENDIX 2 : GREEN ECONOMY LEARNING NEEDS ASSESSMENT PRELIMINARY DEMAND SIDE FINAL QUESTIONNAIRE

Following its first articulation of a Green Economic Policy in 2007, the Government of Barbados in partnership with the University of the West Indies: Cave Hill Campus and the United Nations Environment Programme, completed the Barbados Green Economy Scoping Study (GESS). The GESS defined a green economy as:

"An integrated production, distribution, consumption, and waste assimilation system that, at its core, reflects the fragility of our small island ecosystems as the basis for natural resource protection policy intervention, business and investment choice, human development programming, and for the facilitation of export market development strategies."[33]

In pursuit of sustainable and socially inclusive economic development, the Government of Barbados reaffirmed its commitment to a Green Economy inclusive of the Blue Economy in 2018. Furthermore, in September 2020 Throne Speech, as part of the response to the devastating impact of the COVID-19 Pandemic on Barbados social and economic situation, a number of green recovery proposals were pronounced in the following areas:

- Integrated waste management;
- Renewable Energy including Waste-to-Energy;
- Water augmentation to address scarcity;
- Organic farming and Food security;
- Sustainable Urban Development, Biodiversity and Ecosystem Restoration;
- Coastal rehabilitation, fisheries improvement and marine conservation;
- Greening the Tourism sector;
- Beautification through the clean and green programme;
- Building Climate Resilience; and
- Greening Manufacturing and small and medium size enterprises.

Those measures are consistent with the priority areas examined in the GESS[34], which also focused on a range of policy outcomes in its analytical framework. Those policy outcomes included:

[33] Moore et. al. 2014. The Barbados Green Economy Scoping Study, Government of Barbados, University of the West Indies -Cave Hill Campus, United Nations Environment Programme.

[34] *Ibid.*

- Sustainable Growth and Development;
- Poverty Reduction;
- Green Jobs;
- Environmental Improvement; and
- Resource Efficiency.

One of the key challenges identified by stakeholders and experts engaged during the GESS was ***"weaknesses in the cycle of policy development-implementation-evaluation-refinement".***[35] To ensure that sufficient individual and institutional capacities are developed to support policies for a Green Sustainable Economic Recovery and Transition, the University of the West Indies, Cave Hill Campus (UWI-CH), with the support from the Partnership for Action on Green Economy (PAGE) and the United Nations Institute for Training and Research (UNITAR), is undertaking a Green-Blue Economy Learning Needs Assessment (GBELNA). The overall objective of GBELNA is to support **policy mainstreaming** of relevant green economic and sustainability principles in University-level-learning interventions that address current and emerging sustainable development policy challenges in Barbados and other Caribbean Small Island Developing States.

BACKGROUND

1. What is the name of your agency? ----------

2. What best describes your type of government agency? (Choose one)

   - ☐ Department
   - ☐ Research and Planning Unit
   - ☐ Statutory Corporation
   - ☐ Ministry
   - ☐ Other (please specify) ----------

3. What is your institution's main area(s) of focus?

[35] *Ibid.*

(a) Natural Resources

☐ Land

☐ Soils

☐ Water Resources

☐ Atmospheric – including Solar and Wind

☐ Coastal and Marine Resources

(b) Sector (Resource Use)

☐ Human Settlement/Housing

☐ Agriculture

☐ Fisheries

☐ Tourism

☐ Transport and Infrastructure

☐ Energy

☐ Manufacturing

(c) Policy Interventions

☐ Natural Resource Protection (terrestrial and marine)

☐ Environmental Management (including chemicals and waste management)

☐ Business and Investment facilitation

☐ Human (Capacity) development programming

☐ Social protection

☐ Facilitation of export market development strategies

☐ Resource efficiency

☐ Sustainable consumption and production

☐ Other (please specify) ----------

4. Has your organisation been involved in the analysis, design and/or implementation of any of the relevant policy measures listed below? If yes, please specify.

☐ Barbados Fisheries Policy

☐ Barbados Growth and Development Strategy

☐ Barbados Sustainable Development Policy

- ☐ Barbados Tourism Master Plan
- ☐ Blue Economy Roadmap
- ☐ Blue Economy Scoping Study
- ☐ Coastal Zone Management Policy
- ☐ Green Economy Scoping Study
- ☐ Green Jobs Assessment
- ☐ National Climate Change Policy
- ☐ National Determined Contributions
- ☐ National Energy Policy
- ☐ National Green Economic Policy 2007
- ☐ National Strategic Plan 2006-2025
- ☐ Physical Development Plan
- ☐ Social Protocol V and Social Protocol VI
- ☐ Water Protection and Land Use Zoning Policy
- ☐ Other (please specify)

5. Has your organization integrated any of the following green/blue economic outcomes in its policies, plans or programme execution? If yes, please select the outcome(s).

	Please select
Sustainable Economic Growth and Development	
Poverty Reduction	
Green Job Creation/Promotion	
Environmental Improvement	
Resource Efficiency	

If yes, share an example of one of the outcomes your organization has integrated.

6. In pursuit of national green/blue economic outcomes, has your organization experienced any challenges in any of the phases of the policy cycle? If yes, please select the phase(s).

	Please select
☐ Policy Advocacy	
☐ Policy Formulation	

☐ Policy Analysis	
☐ Policy Implementation	
☐ Policy Monitoring and Evaluation	
☐ Other	

6a. If yes, please share a single example of one of the challenges selected and briefly describe how this challenge could be or was resolved.

KNOWLEDGE, SKILLS AND BEHAVIOURS

Knowledge

7. What knowledge is required in your agency to advance a Green Sustainable Economic Recovery and Transition?

8. What knowledge is not available or require strengthening in your organisation?

9. Does the University of the West Indies Cave Hill Campus provide any programmes that can satisfy meeting the knowledge requirements of your organisation?

   ☐ Yes ☐ No

   If yes, please give an example.

Skills

10. What type of skills is required in your agency to advance a Green Sustainable Economic Recovery and Transition?

11. Which type of skills are not available or require strengthening in your organisation?

12. Does the University of the West Indies Cave Hill Campus provide any programmes that can satisfy meeting the skills requirements of your organisation?

    ☐ Yes ☐ No

    If yes, please give an example.

Behaviour

13. What behaviours are required in your agency to advance a Green Sustainable Economic Recovery and Transition? Rank the level of importance.

14. Which behaviours are not available or require strengthening in your organisation?

15. Does the University of the West Indies Cave Hill Campus provide any programmes that can satisfy meeting the behavioural requirements of your organisation?

    ☐ Yes ☐ No

    If yes, please give an example.

OTHER

16. What type(s) of competency based certification programmes do you think are required for the development of staff members in your organization?

    Please state the level of certification.

    ☐ Certificate (Short/Intensive)

    ☐ Diploma

    ☐ Bachelors

    ☐ Postgraduate Diploma

    ☐ Masters

    ☐ PhD

    ☐ Other ----------

17. How do you envision the green economy (inclusive of blue economy) being integrated in university level education?

18. Any other observations?

APPENDIX 3: DEMAND- SIDE STAKEHOLDER FOCUS GROUP CONSULTATIONS

UWI-CH GREEN ECONOMY E^3 TALKS:

SHAPING A LEARNING AGENDA FOR A GREEN AND RESILIENT FUTURE

E1: Envisioning a Sustainable Future: Policy outcomes for greening the economy October 27, 2021

- Welcome and Introduction
- Purpose and Approach of UWI- CH- PAGE GE 3E Talks
- Aim of the Current Session
- Rio+20 background context for GE policy outcomes
- GESS Reflections- Policy Outcomes
- 2021 Survey Results-(Tailored to each talk)
- Energy Policy -Targeted Policy Outcomes- Issues, Successes, Challenges and Learning Need)
- Discussion: Learning Opportunities -**[Learning Needs for your institution/sector]**
- Wrap Up and Announcement of Next Session

E2: Envisioning a Sustainable Future: Policy outcomes for greening the economy October 28, 2021

- Welcome and Introduction
- Purpose and Approach of UWI- CH- PAGE GE 3E Talks
- Aim of the Current Session
- Rio+20 background context for GE policy outcomes
- GESS Reflections- Policy Outcomes
- 2021 Survey Results-(Tailored to each talk)
- Energy Policy -Targeted Policy Outcomes- Issues, Successes, Challenges and Learning Need)
- Discussion: Learning Opportunities -[Learning Needs for your institution/sector]
- Wrap Up and Announcement of Next Session

E3: Empowered to pursue a sustainable future: Knowledge, skills and behaviours for Policy Practitioners

- Welcome and Introduction
- Aim and Flow of Current Session
- Learning Outcome-Based Curriculum Design process at Cave Hill
- GESS Reflections- Education and Greening the Economy
- 2021 Survey Results
- Knowledge, Skills and Behaviors for effective Coastal Zone Management and Ocean Governance-
- Discussion: Learning Opportunities
- Wrap Up and Announcement of Next Steps

APPENDIX 4: LIST OF PARTICIPANTS OF THE UWI-CH GREEN ECONOMY E3 TALKS

SHAPING A LEARNING AGENDA FOR A GREEN AND RESILIENT FUTURE

	NAME	INSTITUTION
1.	Dr. Leo Brewster	Ministry of Blue Economy -Coastal Zone Management Unit
2.	Mr. Travis Sinckler	Ministry of Environment -Policy Research Planning and Information Unit (PRPIU)
3.	Mr. Ronnie Griffith	Ministry of Economic Affairs
4.	Mr. Ron Goodridge	Ministry of Environment - PRPIU
5.	Mr. Delano Scantlebury	Ministry of Energy
6.	Mr. William Hinds	Ministry of Energy
7.	Mr. Allan Franklin	Economist, Tourism Consultant
8.	Ms. Amrikha Singh	CARICOM
9.	Ms. Joyce Leslie	Fisheries Division
10.	Ms. Eric Watson	Ministry of Labour
11.	Ms. Psyche Burke	Ministry of Labour
12.	Ms. Kelly Hunte	United Nations Development Programme (UNDP)- Partnership for Action on Green Economy (PAGE)
13.	Mr. Mohammad Nagdee	UNDP
14.	Mr. Kyle Holder-Leech	University of the West Indies, Cave Hill Campus (UWI-CH) - Students Guild
15.	Ms. Amina Desai	UWI-CH Past Student
16.	Ms. Atarah Brown	Caribbean Youth Environment Network (CYEN)
17.	Ms. Danielle Howell	CYEN
18.	Dr. Mark Griffith	Caribinvest Inc.
19.	Ms. Donna King Brathwaite	UNDP-PAGE
20.	Ms. Kelly Hunte	UNDP-PAGE
21.	Prof. Winston Moore	UWI-CH

	NAME	INSTITUTION
22.	Ms. Shawn Carter	UWI-CH
23.	Ms. Carol-Anne Blenman	UWI-CH
24.	Ms. Sumaya Desai	UWI-CH

APPENDIX 5: GREEN ECONOMY LEARNING NEEDS ASSESSMENT PRELIMINARY SUPPLY SIDE FRAMEWORK

Following its first articulation of a Green Economic Policy in 2007, the Government of Barbados in partnership with the University of the West Indies: Cave Hill Campus and the United Nations Environment Programme, completed the Barbados Green Economy Scoping Study (GESS). The GESS defined a green economy as:

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- Water augmentation to address scarcity;
- Organic farming and Food security;
- Sustainable Urban Development, Biodiversity and Ecosystem Restoration;
- Coastal rehabilitation, fisheries improvement and marine conservation;
- Greening the Tourism sector;
- Beautification through the clean and green programme;
- Building Climate Resilience; and
- Greening Manufacturing and Small and Medium size enterprises.

Those measures are consistent with the priority areas examined in the GESS[37], which also focused on a range of policy outcomes in its analytical framework. Those policy outcomes included:

- Sustainable Growth and Development;
- Poverty Reduction;
- Green Jobs creation;
- Environmental Improvement; and

[36] Moore et. al. 2014. The Barbados Green Economy Scoping Study, Government of Barbados, University of the West Indies -Cave Hill Campus, United Nations Environment Programme.

[37] *Ibid.*

- Resource Efficiency.

One of the key challenges identified by stakeholders and experts engaged during the GESS was ***"weaknesses in the cycle of policy development-implementation-evaluation-refinement".***[38] To ensure that sufficient individual and institutional capacities are developed to support policies for a Green Sustainable Economic Recovery and Transition, the University of the West Indies (UWI): Cave Hill Campus, with the support from the Partnership for Action on Green Economy (PAGE) and the United Nations Institute for Training and Research (UNITAR), is undertaking a Green-Blue Economy Learning Needs Assessment (GBELNA).

The overall objective of GBELNA is to support **policy mainstreaming** of relevant green economic and sustainability principles in University-level-learning interventions that address current and emerging sustainable development policy challenges in Barbados and other Caribbean Small Island Developing States.

Significantly, at the global level, consultations were undertaken in 2015 by PAGE and UNITAR to consider a philosophical framework for green economy learning. The Paris Summary Statement on Learning for an Inclusive Green Economy was the outcome of those consultations.

---

1. General Information

Name of the Department/Centre/Institute:
Faculty:
Website:
Contact person/Interviewee:
Telephone:
Email:

2. Type(s) of Certification Awarded:

Postgraduate
- PgDiploma
- MPhil
- MSc/MA
- PhD
- Research Fellowship

[38] *Ibid.*

Undergraduate

Certificate

Diploma

Other

3. **Considering the definition of a Green Economy (see below), does your department/faculty offer related learning activities (courses/programmes)?**

"An integrated production, distribution, consumption, and waste assimilation system that, at its core, reflects the fragility of our small island ecosystems as the basis for natural resource protection policy intervention, business and investment choice, human development programming, and for the facilitation of export market development strategies."

Learning Activity (Course/Programme)	Green economy topic(s) or concepts covered	Numbers targeted annually

4. **Are there any specific courses related to a green economy your department/faculty is planning to offer in the immediate future (1-2 years)?**

Learning Activity (Course/Programme)	Green economy topic(s) or concepts covered

5. **Regarding the referenced Green Economy Policy outcomes, using an example of one of your GE (BE) programme or course offerings, please rank the extent to which they are considered or integrated in course objectives, course content or learning outcomes. Ranking 0-No integration; 1-Moderate integration; 2-Significant integration.**

	GE (BE) Course/Prog _____			Notes
GE Policy Outcomes	**Objectives**	**Content**	**Learning Outcome**	
i. Sustainable Growth and Development				
ii. Poverty Reduction				
iii. Green Job Creation				
iv. Environmental Improvement;				
v. Resource Efficiency				

6. **Based on criteria defining Green Economy Learning provided in the 2016 PARIS SUMMARY STATEMENT ON LEARNING FOR AN INCLUSIVE GREEN ECONOMY[39], and using an example of 1-3 of your Green Economy (Blue Economy) programme offerings, please rank the level of alignment. Ranking- 0-No alignment; 1- Moderate alignment; 2- Significant alignment**

INCLUSIVE GREEN ECONOMY CRITERIA	**Course/Programme**			**NOTES**
	1 _____	**2** _____	**3** _____	
i. Learning which promotes interdisciplinary, multi-sectoral and multi-level approaches to empower individuals, communities and				

[39] 2016 PARIS SUMMARY STATEMENT ON LEARNING FOR AN INCLUSIVE GREEN ECONOMY

INCLUSIVE GREEN ECONOMY CRITERIA	Course/Programme			NOTES
	1 _____	2 _____	3 _____	
societies towards achievement of the SDGs				
ii. Learning which puts sustainability at the heart of economic policies and practices and is founded on concepts such as green growth, ecological civilization or low carbon and climate resilient growth				
iii. Changing attitudes, mindsets and behaviours to support a reframing of the current economic growth paradigm				
iv. Seeking to inform the earliest stages of educational development in ways that are constructive, positive and solution-oriented				
v. Making learning and knowledge available to all in society, through open access methods and approaches and by seeking to 'reach the furthest first' and 'leave no one behind'				
vi. Learning that is truly transformational in intent				

7. Does your centre/institute/faculty offer programming in the following learning needs identified by GE Policy Practitioners? Please indicate yes or no.

LEARNING NEED CLUSTER	YES	NO
1. SIDS Sustainable Development Policy Context		

LEARNING NEED CLUSTER	YES	NO
2. Green Technology, SCP Resource Efficiency and Circular Economy Including IT		
3. The Policy Cycle for a GE Transition		
4. Finance and Resource Mobilisation for a Resilient GE/BE		
5. Legal, Institutional and Governance dimensions of a Green Economy Transition		
6. Designing Just GE Transition programmes and Social dimensions		
7. Evidence-Based Policy Design and Analysis for a Green Economy Transition including GE modelling		
8. EEZ Governance in SIDS-Sustainable Utilization and Management		
9. Building Climate Resilience in a Green and Blue Economic Transition		
10. Sustainable Energy Technologies		
11. Natural and Built Heritage Conservation and the Green Economy/ Managing Heritage in GE Transition		
12. Designing stakeholder driven and inclusive green and blue economy policies;		
13. Designing effective communication programmes for a Green Economy transition		
14. Institutional Needs Analysis and Development in support of GE/BE		
15. Skills for Natural Resource Valuation		
16. Establishing Monitoring and evaluation programmes for GE policies		
17. Negotiation skills		
18. Project management		
19. Procurement		
20. Cost Effective Analysis Skills		
21. Cost Benefit Analysis Skills		
22. Sustainability Impacts and the GE Transition		
23. Economics for non-economists		

LEARNING NEED CLUSTER	YES	NO
24. Finance for non-finance specialists		

8. Additional Information.

APPENDIX 6: FINAL UWI-CH SUPPLY SIDE INTERVIEW GUIDE

1. Type(s) of courses and certification awarded;

2. Identification of current green economy related learning activities offered by your department/faculty/institute;

3. Identification of future plans to offer courses related to a green/blue economy your department/faculty in the immediate future (1-2 years);

4. Identification of any courses/programmes that reference the following areas and acknowledge them as Green Economy Policy outcomes:

vi. Sustainable Growth and Development
vii. Poverty Reduction
viii. Green Job Creation
ix. Environmental Impact
x. Resource Efficiency

5. The extent to which the tenets of the 2016 Paris Summary Statement on Learning for an Inclusive Green Economy (see attached), is considered in the development and execution of any of your programme offerings.

APPENDIX 7: SUPPLY SIDE KEY INFORMANTS

	UNIVERSITY OF THE WEST INDIES, CAVE HILL CAMPUS		
	KEY FACULTY MEMBERS	**POST**	**FACULTY, SCHOOL, CENTRE, INSTITUTE**
1.	Professor Frederick Ochieng'-Odhiambo	• Dean	• Faculty of Humanities and Education
2.	Dr. Alana Lancaster	• Lecturer	• Faculty of Law
3.	Dr. Mahalia Jackman	• Senior Lecturer • Head of Department of Economics	• Department of Economics
4.	Dr. Halimah DeShong	• Senior Lecturer • Head of the Institute for Gender and Development Studies: Nita Barrow Unit	• Institute for Gender and Development Studies
5.	Dr. Tonya Haynes	• Lecturer	• Institute for Gender and Development Studies
6.	Prof Hazel Oxenford	• Professor – Fisheries Biology and Management Coordinator, Coastal and Marine Resource Management stream	• CERMES
7.	Dr. Kristina Hinds	• Head of Department of Government, Sociology, Social Work & Psychology	• Department of Government, Sociology, Social Work and Psychology
8.	Dr. Dion Greenidge	• Senior Lecturer, Department of Management Studies • Director of The Centre for Professional Development and Lifelong Learning	• Centre for Professional Development and Lifelong Learning, and • Cave Hill School of Business • School of Public Policy,
9.	Ms. Ayanna Young Marshall	• Lecturer • Coordinator of the SEED	• Student Entrepreneurial Empowerment Development (SEED) programme

APPENDIX 8: GREEN ECONOMY KNOWLEDGE AND SKILLS REQUIREMENTS IDENTIFIED BY POLICY TECHNOCRATS IN THE GBELNA DEMAND SIDE SURVEY

Adaptative Reuse in the Built Environment	Environmental statistics	Microeconomic analysis
Adaptive management	Environmental technologies design and adoption	Monitoring and evaluation techniques
Alternative energy technologies	Finance	Natural resource management
Change management	Finance- Public Finance for the Green Economy	Natural Resource valuation
Circular Economy in Fisheries- Utilisation of fish waste	Fishing technology	Ocean Management
Climate finance resource mobilization	Green Business	Oceanography
Communication of scientific information	Green economy modelling	Policy analysis
Communicatng Creatively	Green economy policy analysis	Policy brief preparation
Community Inclusion in the Green Economy	Green finance and fiscal policy	Policy evaluation
Data analysis and interpretation	Green Spaces: Social, Environmental and Economic Considerations.	Project management including procurement
Design Management for Sustainable Heritage, Development	Greening	Project procurement
Development of climate projects	Horizon Scanning	Resilience planning and mainstreaming
Economics for non-economists	Information technology	Resource efficiency

Economics of development	Innovation Policy Development	Scenario Development/Planning for Green Economy Transition
Environmental and Social Governance	Just Transition programming	Site Analysis and Integrated Planning for Green Spaces
Environmental economics	Labour Dispute Settlement-	Social impact assessment
Environmental law	Law and Green Economy	Statistics including survey development
Environmental management	Law of the Sea	Sustainability impact analysis
Environmental modelling	Law: Access to Environmental Justice	Sustainable Aquaculture
Environmental monitoring	Mainstreaming Climate resilience	Sustainable Consumption and Production
Environmental Science	Mainstreaming Green Economy Principles in Programmes and Projects	Sustainable Development