Socio-Economic Assessment of the Blue Economy in Seychelles

Preliminary Analytical Report – April 2021

United Nations
Economic Commission for Africa

ideas for a prosperous Africa

Acknowledgements

The assessment is being prepared by Stuart Laing (consultant) under the supervision of Mama Keita, Director of the United Nations Economic Commission for Africa (UNECA) Sub-Regional Office for Eastern Africa (SRO-EA) and Raquel Frederick, Associate Economic Affairs Officer. A preliminary draft has been prepared for presentation to Seychelles government representatives and other stakeholders in April 2021.

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Cover image: Anse Volbert Beach on Praslin Island, Seychelles. Adel Newman/Shutterstock.com

Executive Summary

The preliminary analytical report for the consultancy Development of a socio-economic assessment of the Blue potential in Seychelles using the ECA Blue Economy valuation toolkit presents interim results of the project thus far. It provides sound context relating to the Blue Economy and specifically, the Blue Economy in Seychelles. Preliminary socio-economic indicators are presented as possible indices to be included in the UNECA Blue Economy valuation toolkit (BEVTK).

The indicators in this document are under development and require testing as well as stakeholder verification. The content within this document is the base upon which the final analytical assessment will be founded and should be treated as such. Preliminary analyses have shown that, when using the BEVTK, the economic dimension of Seychelles' Blue Economy was $495 million comprising 30.6% of GDP and contributing 45% of Seychelles formal employment (2018 data). The social dimension reveals high adult literacy rate (98%), reliance on fish protein (58.9kg/person/year) and access to water and sanitation (93%), whilst 25% of people are living below the poverty line and 20% of enrolments at non-university tertiary institutions are in BE centers. The ecological dimension reveals that the ecosystem services associated with coral reefs, mangrove forests and seagrass meadows are valued at $48 billion.

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Abbreviations

ANA	Annual national accounts
ANHRD	Agency for National Human Resource Development
AU	African Union
AU-IBAR	AU Inter-African Bureau for Animal Resources
BE	Blue Economy
BEAP	Blue Economy Action Plan
BEVTK	UNECA Blue Economy valuation toolkit
CSOs	Civil society organizations
DBE	Department of Blue Economy
EEZ	Exclusive Economic Zone
GDP	Gross domestic product
GIZ	Geographic Information System
GNI	Gross national income
IOC	Indian Ocean Commission
ISIC	International Standard Industrial Classification
MPA	Marine protected area
MSP	Marine spatial planning/plan
NBS	National Bureau of Statistics
OA	Ocean Accounting
SeyCCAT	Seychelles Conservation and Climate Adaptation Trust
SFA	Seychelles Fishing Authority
SNA	System of National Accounts
ToR	Terms of Reference
UN	United Nations
UNDESA	UN Department of Economic and Social Affairs
UNECA	UN Economic Commission for Africa
UNFCCC	United Nations Framework Convention on Climate Change

Chapter 1: BACKGROUND AND SCOPE

1.1 Background

Societal use of the ocean has been ongoing for several hundreds of years. In the recent past, countries have become conscious of the ocean's value and of our reliance upon it. This consciousness has led to the growth of the concept of the Blue Economy. The Blue Economy has become a widely debated concept, with many agreeing that it should include not just marine, but all aquatic resources. UNECA utilizes the expanded definition used by the Indian Ocean Commission (at right) (Indian Ocean Commission & UNECA, 2020). It developed primarily out of the green movement which saw the term 'green economy' grow in stature (UNEP et al., 2012). Many perceive the ocean to be a harmonious system in which organisms ensure that nothing is wasted; it is from this concept that ideas such as the circular economy found similes (Pauli, 2019). The Blue Economy concept reached its adoptive tipping point shortly after the 2012 United Nations Conference on Sustainable Development Rio+20. Whilst the term itself is devoid of a standard definition across sectors, countries and institutions, several themes, such as sustainability, equity and inter-generational benefit are common among most (FAO, 2018; Keen et al., 2018; United Nations, 2012; World Bank & UN DESA, 2017).

The Blue Economy, which spans several of the SDG goals, including SDG14 (Life Below Water) (Hudson, 2018; Wenhai et al., 2019), encompasses a broad range of sectors, industries and stakeholders across the public and private sector, all competing for the use of the same ecosystem (Burgess, Clemence, McDermott, Costello, & Gaines, 2018; World Bank & UN DESA, 2017). To achieve sustainable and equitable use, inter- and multi-disciplinary research and approaches are required for a successful Blue Economy (Wenhai et al., 2019). Seeing as the ocean is a global entity, this often requires cooperation and collaboration across nation-states (World Bank & UN DESA, 2017).

DEFINING THE BLUE ECONOMY

*The **Blue Economy** relates to the sustainable use and the conservation of oceans and seas, coastlines and banks, lakes, rivers and groundwater – both marine and freshwater environments.*

It comprises activities that organise in an integrated, fair and circular manner the production, distribution, trade and consumption of goods and services resulting from the exploitation of aquatic resources (fisheries, mining and petroleum, biotechnologies and alternative energies, etc.) or from the use of supports of aquatic environments (maritime transport, seaside tourism, etc.). These activities contribute to improving the health status of aquatic ecosystems by establishing protective and restorative measures.

*As a result, the **Blue Economy** revolves around the valorisation of socio-economic sectors and ecological components.*

- **Blue Economy Regional Action Plan, Indian Ocean Commission** (Indian Ocean Commission & UNECA, 2020)

There has been marked international and regional interest in the Blue Economy and Ocean Accounting. Internationally, the UN has declared 2021-2030 as the 'Decade of Ocean Science for Sustainable Development' with the aim of fostering 'The Science we need for the Ocean we want'. The High-Level Panel for a Sustainable Ocean Economy was established in 2018 and includes outputs such as *National Accounting for the Ocean and Ocean Economy* (Fenichel et al, 2020) in its peer-reviewed *Blue Papers* series. The Global Ocean Accounting Partnership was developed to consolidate international efforts at Ocean Accounting. In the Caribbean, Ram *et al*. progressively produced a Caribbean Development Bank paper titled *Measuring the Blue Economy: The System of National Accounts and Use of Blue Economy Satellite Accounts* (Ram et al, 2019). The African Union recently developed the *Africa Blue Economy Strategy* (AU-IBAR, 2019) and its *Agenda 2063* (AU, 2015) to guide regional approaches to the BE, the Indian Ocean Commission developed the *Regional Action Plan for the Blue Economy* (IOC & UNECA, 2019) and the UNECA developed *Africa's Blue Economy: A policy handbook* (UNECA, 2016). Seychelles has been active in the BE space since 2013 with its *Seychelles Blue Economy: Strategic Policy Framework and Roadmap* (2019), *Seychelles Vision 2033* (2019), *Seychelles Blue Economy Action Plan* (2020) and intending to include Blue Carbon in its revised Nationally Determined Contribution to the UNFCCC, in conjunction with various transitional funding activities (Seychelles Debt-for-Nature Swap, Blue Bond, SWIOFish3).

The Blue Economy spans across many industries and sectors. This inherently creates complexity when attempting to understand the extent of its socio-economic context. Human reliance on Blue resources is not always monetary; indeed, some use the resources for artisanal purposes, for bartering and trade, whilst others enjoy the recreational and spiritual benefits associated with them. Well-being is a central tenet of the Blue Economy resulting in an urgent need to understand the socio-economics of the Blue Economy as well as how to measure changes, or progress, associated with it.

1.2 About Seychelles

Seychelles is Africa's smallest country with a terrestrial area of 455km^2, approximately half of which is protected (Government of Seychelles, 2014). It has the smallest population of the continent of approximately 98,400 in 2020 (National Bureau of Statistics, 2020a) and consists of an archipelago of 115 islands, boasting Africa's second largest Exclusive Economic Zone (EEZ) at 1,370 million km^2. Tourism and fisheries are the primary sources of employment providing formal employment for at least 26% and 17% of the population respectively (Hindle, 2019). These sectors are also significant contributors to GDP with tourism contributing directly and indirectly 55% and fisheries constituting 20%, whilst fisheries are responsible for ~93% of the nation's exports (Hindle, 2019). Consequently, it is apparent how crucial a healthy marine environment is for the country's success.

Additionally, it is understandably clear that the Seychellois are tightly connected with the marine environment.

Seychelles economy is particularly vulnerable due to its relatively isolated geographic location and its undiversified nature. The latter is a short coming that has required attention for many years (ASCLME, 2011). Its substantial reliance on fisheries and tourism make it vulnerable to exogenous shocks, as well as endogenous inefficiencies that may exist. The fisheries sector faces several challenges, a primary one being an inadequately trained and aging workforce, with few signs of succession (Government of Seychelles, 2019). In spite of this, the *Seychelles Fisheries Sector Policy and Strategy 2019* aims to uplift the sector and safeguard both its present labour force and future entrants. A specific emphasis is placed on the inclusivity of the industry through supporting gender equity and those of a vulnerable nature (Government of Seychelles, 2019). The strategy recognizes that to achieve these ambitions there needs to be capacity building, primarily through educational and training programmes. There are four policy statements in the strategy that, if implemented, are likely to result in a more resilient fisheries workforce that enjoys greater well-being[1].

Tourism faces similar challenges from an employment perspective. A high proportion of the jobs in the tourism sector are held by non-Seychellois[2], a factor that contributed in part to the development of a policy concerning foreign employment in 2020 (Central Bank of Seychelles, 2020). It has been noted that jobs are not necessarily scarce, yet the foreign element of the workforce remains (Government of Seychelles, 2018). Among the identified reasons for this are possible attitudinal shortcomings, unfavourable work hours, particularly for mothers who are integral to the family unit, and a lack of skills in for the required role, or skills mismatch (Central Bank of Seychelles, 2020; Government of Seychelles, 2018). One knock on effect of high foreign labour numbers is often an outward migration of financial capital (Central Bank of Seychelles, 2020).

As a result of its undiversified economy and reliance on the two primary sectors, Seychelles is vulnerable to global economic downturns. This has been evident in both the 2008 financial crisis, which ultimately led to the country defaulting on loan repayments to international creditors (CIA, 2021), and more recently the Covid-19 pandemic in 2020 and 2021,with the country's economy suffering due to the ailing tourism sector. It is was estimated that global declines on tourism flows for the first half of 2020 could see a drop in receipts from tourism of $460 billion, a loss purported to be three times that of the 2007-2008 financial crisis (OECD, 2021). Seychelles itself saw tourism

[1] Policy 6: Seychellois stake-holding in the industrial fisheries sector; Policy 7: Employment, training, resourcing and human resource development; Policy 8 Strengthening Monitoring Control and Surveillance; Policy 9: Research and Innovation in the fisheries sector and aquaculture (Government of Seychelles, 2019).

[2] It is estimated that in the accommodation and food service industry, 27% of the workforce employed are foreigners (Government of Seychelles, 2018).

numbers crash from a record 384,000 visitors in 2019 (National Bureau of Statistics, 2021) to a reduction of 70% when comparing 2019 with 2020 (National Bureau of Statistics, 2021). The consequences of the recent severe downturn in tourism include a resultant decrease in foreign exchange inflows, impacting on governments ability to service debt obligations in major foreign currencies, as well as negative implications for servicing balance of payment deficits and international infrastructure loans, such as the Port of Victoria Quay Extension project (Seychelles Ports Authority, 2019). Additionally, Seychelles' economy was projected to have a growth rate of negative 13% to negative 16% for the third quarter of 2020 after enjoying consistent growth in the 4% range since 2017 (Frederick & Ramrattan, 2020; OECD, 2021).

Aside from short-term shocks to economies, such as global recessions and pandemics affecting tourism, over exploitation of the nation's marine environment is possibly the greatest medium to long-term risk to Seychelles' economy. Currently the country's small-scale artisanal and sport fishing industries are open access, meaning there are few to no regulations on catch size, number of fish kept or number of vessels allowed in these fisheries. Thus, there is valid concern regarding the risk of the nation's fisheries. Fisheries at risk would lead to income losses for fisherman and direct negative impacts on the tourism industry, having ramifications for the country's economy and the peoples' well-being. Food security would be highly compromised as most of the fish consumed is locally caught (Ministry of Finance Trade and Economic Planning, 2017). Further, there is concern regarding the management of natural resources being hampered by "insufficient financing, capacity, and legal and institutional frameworks" (Ministry of Finance Trade and Economic Planning, 2017).

Figure 1. Seychelles Blue Economy representation from Seychelles Blue Economy: Strategic Policy Framework and Roadmap 2018-2030 (Republic of Seychelles, 2018)

1.3 Seychelles' Blue Economy Development

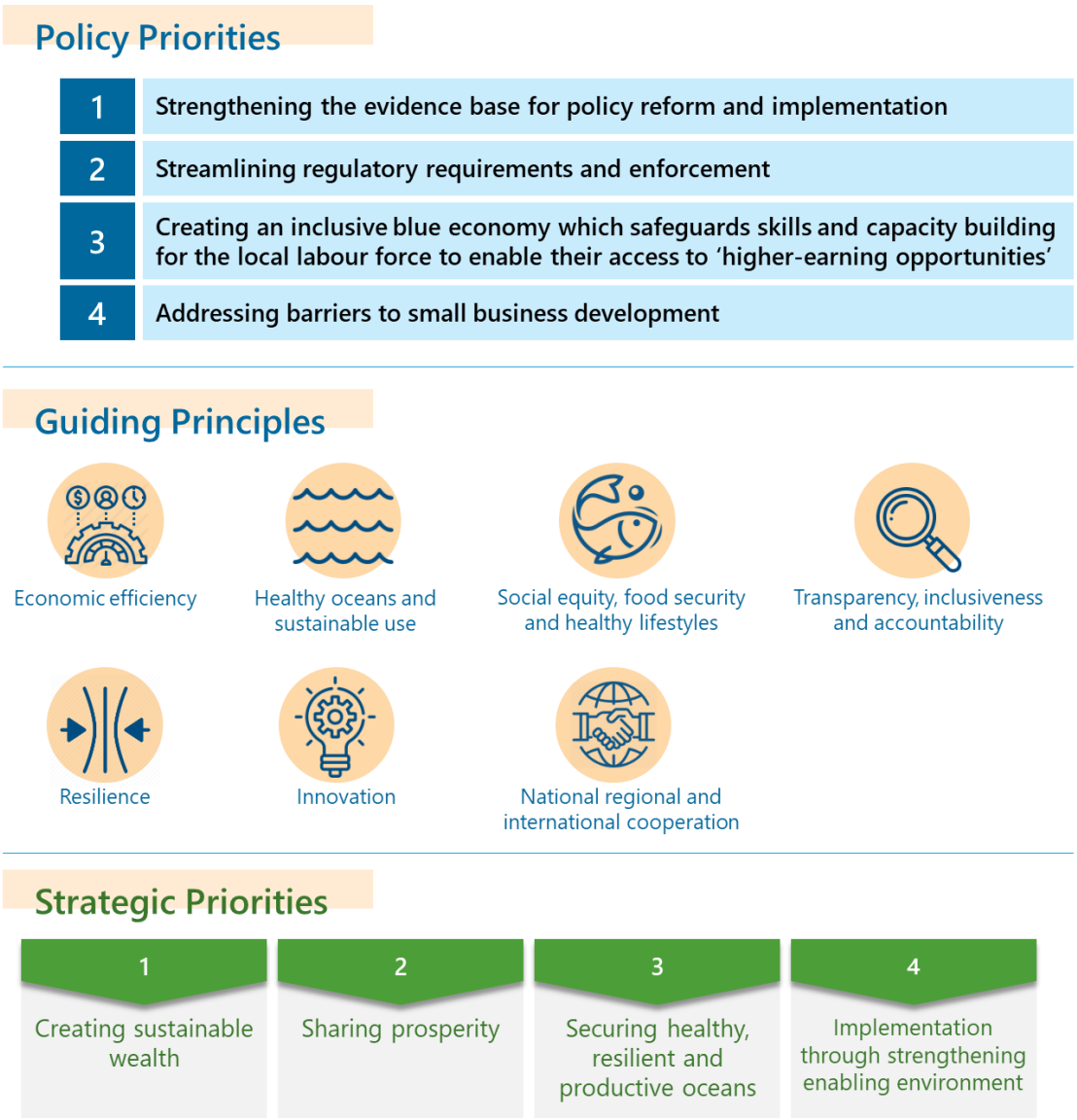
Seychelles was an early adopter of the Blue Economy concept, and indeed a regional, possibly even a world, leader. The innovative approaches the country has used to assist with the development of, and transition to, a Blue Economy are demonstrated by a land-mark debt-for-nature swap (DNS), the establishment of the public-private trust fund Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) to administer annual funding to Blue Economy oriented projects in Seychelles, the world's first 'blue' bond, and its national document *Seychelles Blue Economy: Strategic Policy Framework and Roadmap 2018-2030*, (Figure 1) hereinafter referred to as *The Roadmap* (Republic of Seychelles, 2018). The DNS and the blue bond have provided financial contributions, whilst *The Roadmap* document presents policy priorities, principles and strategic policies (or pillars) required for Seychelles to realise its Blue Economy.

The Roadmap identifies four policy priorities required to enable the development of Seychelles Blue Economy (Figure 2). The policy priorities are required to enable the realization of *The*

Roadmap's seven guiding principles and four strategic priorities, to ensure a successful Blue Economy.

The transition to a Blue Economy is not straightforward. It may require those actors within the space to be open-minded, or to exercise some form of adaptive capacity. This is in light of the possibility of "paradigm shifts" being required as users of the ocean and its resources move away from current exploitative and selfish resource use toward more innovative and shared prosperity that aligns with ecological health (Republic of Seychelles, 2018).

Figure 2. The policy priorities, guiding principles and strategic priorities of Seychelles' Blue Economy



The first three of the seven guiding principles (Figure 2) of *The Roadmap* relate directly to the primary components of a Blue Economy, namely the economic, environmental and social components. Principles one, two and three are supported by the remaining four principles which

assist in creating a favourable enabling environment for Seychelles' Blue Economy to be realized. These last four principles often relate to more than one of the Blue Economy components. For example, principle four calls for transparency, inclusiveness and accountability. Seychelles marine spatial plan (MSP), a result of the DNS, considered economic, environmental and social implications during the declaration of the marine protected areas that now cover 30% of Seychelles EEZ. Principle five, simply named 'resilience' can be seen to apply to the environmental context. Having a healthy, biodiverse ocean and ecosystems improves the resilience of the environment, meaning it is likely to withstand, or recover from shocks, more successfully than a damaged, unhealthy or overexploited environment. Similarly, building a resilient population through education and skills development can encourage a stronger and more diverse workforce that is likely to adapt to shocks more successfully than one with a relatively homogenous skill set, or that is less educated. A resilient workforce in turn can contribute to a stronger economy that suffers less during economic hardships. In an island nation with high reliance on the marine environment, it must be noted that environmental resilience should be the primary focal point; it is entity upon which Seychelles economy and social well-being is based, providing food security and an aesthetic scene that attracts tourists, among the many other services housed by a marine environment as diverse as Seychelles.

The *Roadmap* also proposes four strategic priorities (Figure 2) that, if fostered and acted upon, will ensure longevity of Seychelles' Blue Economy. The priorities are key requisites for action of, and investment in, the Blue Economy. The priorities complement the seven guiding principles whilst illustrating Seychelles intent to adhere to the Blue Economy paradigms of economic prosperity that is inclusive, but not to the detriment of the marine environment.

In conjunction with the above, there is an understanding of the importance of natural capital and how it serves as a comparative advantage that the country needs to leverage (Government of Seychelles, 2017), particularly through the countries commitments in terms of responsible tourism to the UN World Tourism Organization and the Convention on Biological Diversity (Carolus, 2015). An aspect of the Blue Economy that requires additional investment though, in terms of monitoring and reporting, providing support and guidance on investments and opportunities, is the social component. Seychelles currently has a grants and investment mechanism for civil society, NGOs and government departments to apply to for support in conducting activities that assist the Seychelles society transition to a Blue Economy, as well as raising the adaptive capacity of the population. In spite of the work of SeyCCAT, one of the implementing agencies, there is more work required to understand the society's perception of the Blue Economy, the opportunities it presents, as well as the potential value that is currently being unlocked by the Seychellois.

1.4 Phase I – Blue Economy Valuation Toolkit

The Blue Economy is a complex and highly interrelated concept. Defining parameters for measurements is difficult, as it requires in-depth understanding of the social and economic

constructs of a country, as well as sound knowledge of the ecological resources that could be classified as contributing to the concept. From 2016, UNECA's Sub-Regional Office for Eastern Africa has promoted the Blue Economy, largely through policy and strategy development. This work included a policy handbook and support to countries and regional organizations, such as the Indian Ocean Commission. More recently, the office has supported efforts to value the Blue Economy and measure its potential, with a goal of facilitating informed policymaking and investment.

In 2020, UNECA commissioned the development of a Blue Economy Valuation Toolkit (BEVTK). The aim of this toolkit was to provide government officials and decision makers with a simple yet comprehensive estimate of the value of that country's Blue Economy, which includes the economic, social and ecological dimensions. Consultants Pierre Failler and Philippe Lallemand, who were responsible for creating the logic behind the excel-based tool, developed the BEVTK. UNECA's vision for the tool is for it to be used in countries throughout Africa and further afield. Phase I of the BEVTK project focused more closely on:

- Identification of Blue Economy industries
- Ease of obtaining, and the availability of, data
- Attempting to adjust values in line with the Blue Economy
- Using the data to make a first estimate of the economic, social and ecological values of the pilot country's Blue Economy
- Continued testing of the tool to criticise its user-friendliness and functionality

Knowledge of data and data type availability, of pertinent stakeholders and of lags expected in communication all contribute significantly to conducting assessments and establishing measurable parameters for a tool. In order for UNECA to deliver a sound and functional tool, the BEVTK needed to be piloted in conjunction with its development. In so doing, those piloting the tool would be able to provide feedback to the developers, whilst ascertaining whether the tool would indeed be functional and possible. To this end, UNECA had the BEVTK piloted in one land-locked (Rwanda), one coastal (Djibouti) and one island state (Seychelles).

The BEVTK is a comprehensive excel-based application that requires users, likely employees of a national Blue Economy department or a national statistics organisation, to input economic, social and ecological data into individual tables specific to each of the three pillars mentioned. The metrics that the tables include are pre-defined depending on whether the country in question is land-locked, coastal or an island. Metrics can be added to or removed from the pre-defined lists of the different tables. Once the tables are populated, summary statistics and charts are automatically created and can be viewed concurrently on the 'Dashboard' (Figure 3). This enables decision makers to have quick access to meaningful, summarized outputs of the country's Blue Economy.

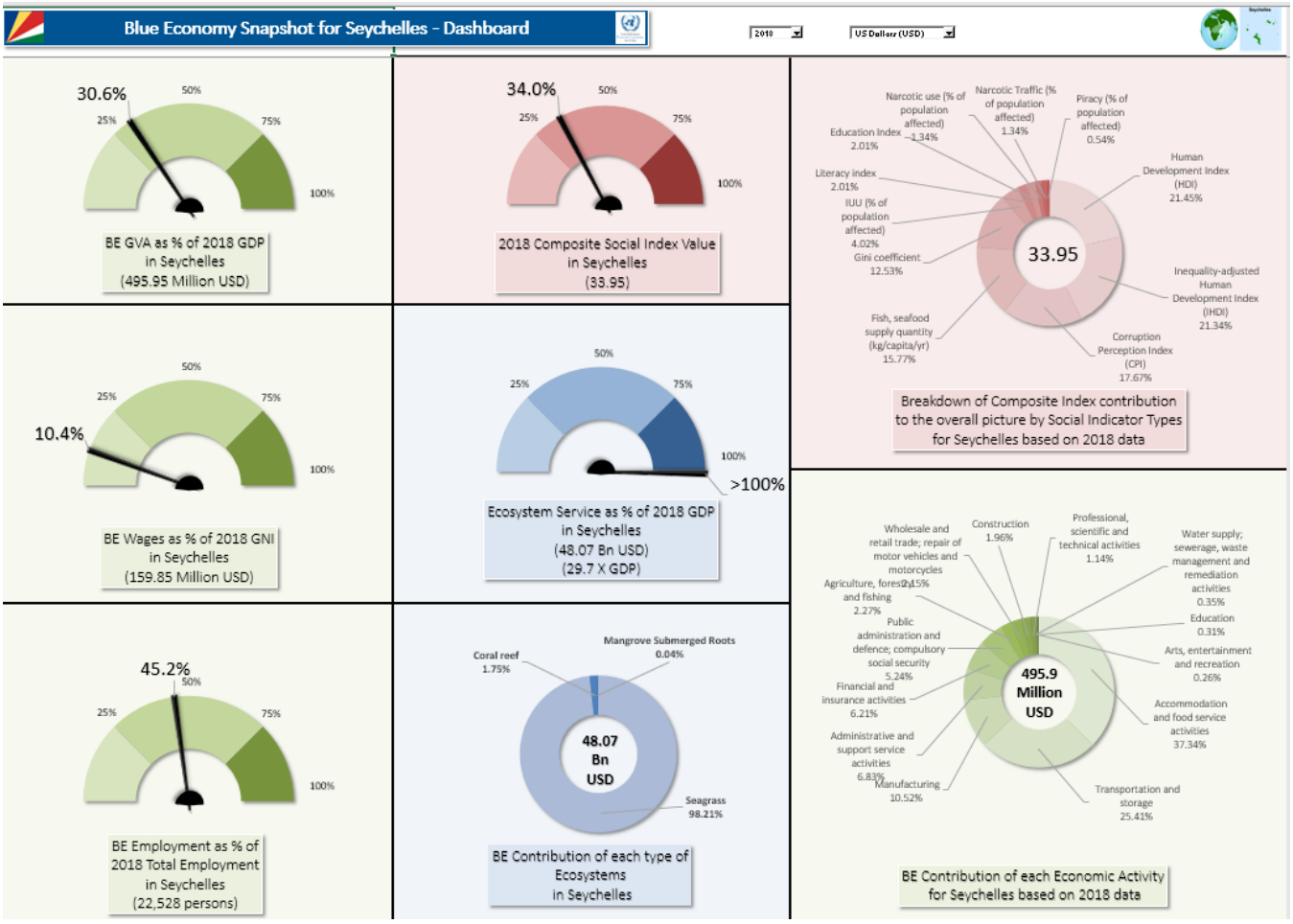
In the pilot case of Seychelles, some of the specific challenges faced in the testing of the BEVTK included[3]:

- Weak social data
- Difficulty with identification and definition of social indicators for the BEVTK
- Data access
- Lack of focused research agenda and data collection relating to Blue Economy metrics
- Lack of accurate discounting methodology

The Seychelles pilot study revealed a sound summary of the economic data in Seychelles Blue Economy as well as old and less reliable data for the ecological indicators. There was a paucity of social indices for reporting, with most of the data reliant on larger global databases that are not been tailored to Blue Economy reporting. The piloting of the BEVTK required stakeholder engagement and data mining in order to achieve some degree of success. Close interaction was kept with Seychelles National Bureau of Statistics. The economic data that was available was sound, however it was highly aggregated making it difficult to provide accurate economic estimates. Whilst the ecological and social data collation and input were challenging and scarce, the process of testing the BEVTK, providing feedback to the lead consultants, error checking and understanding how to use the toolkit were valuable exercises as they resulted in a more robust product.

[3] For elaboration of the challenges faced, see *Laing, SCS. 2021. Development of a socio-economic assessment of the Blue potential in Seychelles using the ECA Blue Economy valuation toolkit – Inception Report. UNECA-SRO-EA: Kigali.*

Figure 3. The 'Dashboard' of Seychelles' Blue Economy Valuation Toolkit using preliminary data



Source: UNECA

1.5 Phase II – Scope of Work

Phase II of the BEVTK development goes into more depth regarding the socio-economics of the tool. Phase II was developed to undertake a comprehensive assessment of the socio-economic Blue Potential in Seychelles. The pilot assessment addressed the economic dimension sufficiently given the currently available national accounts. Notably, initiatives such as the National Bureau of Statistics' supply use tables, and tourism and fishery satellite accounts, are under development. As these data sources become available, estimates of the economic dimension of Seychelles' Blue Economy will become more accurate.

Unfortunately, it was not possible to overcome the data challenges with the ecological dimension. Projects that relate to ecosystem services valuation within the Seychelles' marine protected areas (MPAs) and the mapping of blue carbon ecosystems are underway, the results of which will assist with data provision. The coral reef strategic plan is under development and is likely to yield guidelines for the coherent collection of data from monitoring efforts by various organisations.

These initiatives will assist with ecological value estimates. The ecological dimension remains a point for deeper collaboration with the government of Seychelles in the future.

Given the challenges with identifying and collecting social data in the Phase I trial, this dimension was prioritized in the current scope for Seychelles.

The assessment will be achieved through the following means:

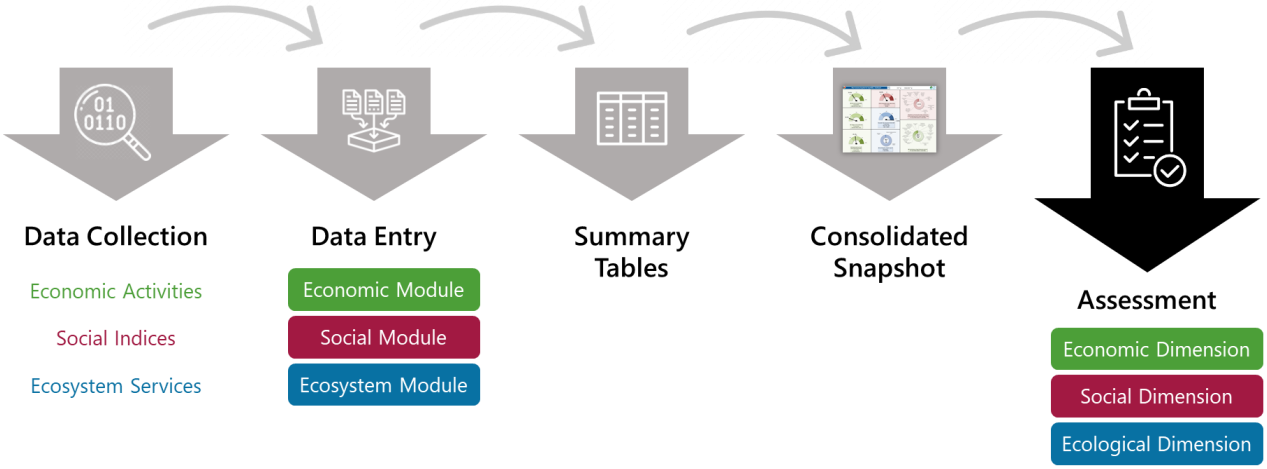
1. Conduct a stakeholder and literature review of the socio-economic data in Seychelles, narrowing these down to data that are applicable to the Blue Economy.
2. Identify where data gaps may exist in terms of metrics that could, or should, be reported on.
3. Compile a socio-economic assessment report of the Blue Potential in Seychelles that has been reviewed by key stakeholders and validated through a national webinar.

The scope of work is broad. The Blue Economy in Seychelles spans most economic industries and includes most of the country's socio-economic activities. Consequently, the number of stakeholders, both governmental and private sector, to be engaged with is high, creating an additional layer of complexity. This broad scope can result in certain stakeholders being omitted during the assessment. Nonetheless, the assessment will provide a sound reflection of the socio-economic blue potential in Seychelles.

Chapter 2: METHODOLODY

The stages to developing this assessment generally follow the proposal outlined in the BEVTK Operational Manual (Figure 4). The BEVTK is organized around three modules which ultimately form the three dimensions of this assessment: economic, social and ecological.

Figure 4: High-Level Steps in Developing Assessment



2.1. Economic Data and Module

Being a small island developing state, most of the activities in Seychelles can be attributable to the BE. However, care should be taken not to overstate the value of the BE and ensure that there are not misallocations. As such, a conservative approach was used to value Seychelles' BE. Seychelles value added and GDP data for the year 2018 was used in the calculation of the economic dimension. The data sources used for the preliminary assessment are shown in Table 1. The GDP data, published by the National Bureau of Statistics (NBS) in its annual national accounts (ANA) publications, includes all industries that are present in the island states formal economy, and includes the International Standard Industrial Classification of All Economic Activities (ISIC) codes associated with the activities.

Table 1: Data sources used to complete the economic dimension of the BEVTK

Data source	Data description	Statistics	Data type
NBS	2018 Annual National Accounts Statistics	Gross Value Added	Economic
NBS	2020 Formal Employment and Earnings	Wages and employment	Economic

The specific industries and ISIC codes included in the BEVTK estimate of the economic dimension of Seychelles BE are shown in Table 2.The data published in Seychelles' ANA is at the highest level (level 1) of aggregation. This means the data within an ISIC industry in Seychelles is combined and cannot be broken down to more specific ISIC levels, of which there are four. As can be seen in

Table 2, only Manufacturing is disaggregated to ISIC level 2. Consequently, identifying the relevant Blue Economy industries and ascribing the full value added of each industry from the ANA in the BEVTK would result in overstatement of the Blue Economy in Seychelles. As such, more detailed industry information is required to make more accurate estimates of Seychelles' BE, at least to ISIC level 2. Additionally, some industries have inputs from other industries, meaning that Blue Economy values may not be accounted for if an industry is omitted from the calculations

Table 2: Seychelles' Blue Economy industries included in the BEVTK estimate of the value of Seychelles' Blue Economy, including ISIC codes

Economic Activity by ISIC Category
A - Agriculture, forestry and fishing
C - Manufacturing
C10 - Manufacture of food products
C11 - Manufacture of beverages
E - Water supply; sewerage, waste management and remediation activities
F - Construction
G - Wholesale and retail trade; repair of motor vehicles and motorcycles
H - Transportation and storage
I - Accommodation and food service activities
K - Financial and insurance activities
M - Professional, scientific and technical activities
N - Administrative and support service activities
O - Public administration and defence; compulsory social security
P - Education
R - Arts, entertainment and recreation

The BEVTK has been designed to accommodate the issue of aggregated data. It enables users to input the percent of a specific industry, or ISIC code entered, that is attributable to the Blue Economy. This same percentage is applied to the number of people in the labour force for each industry. It also allows for a comment on the quality of the data, stating whether the data is official data or some form estimate. The result is a more accurate estimate of the country's BE.

In order to estimate the percent of each ISIC industry's value added to the Blue Economy in Seychelles, meetings with the NBS were held. This provided expert insight into the ANA and how the industry data is collected and collated. Additionally, the full list of disaggregated Seychelles industries with their ISIC codes were scrutinized to understand which components pertain directly to its BE, which industries to include, and what proportion of an industry would be attributable to Seychelles' BE.

2.2. Social Data and Module

Many countries' approaches to the Blue Economy have been extractive in nature, focusing more on economic gains, side-lining the importance of ecological and social sustainability that ensure the prosperity of the Blue Economy concept for future generations. Studies have been conducted examining the role of the social and ecological dimensions in the interrelated Blue Economy concept. An African case-study identified four 'full-spectrum sustainability categories' that represent the categories affected by activities that take place within the context of the Blue Economy (Table 3) (Okafor-Yarwood et al., 2020). Whilst this is not central to the methodology employed in this project, cognizance was made of the two categories that relate to socio-economics and human wellbeing. The broad level categories and their associated indicators provide a point of departure against which indicators identified in this project can be compared.

Table 3. Categories, sustainable objectives and example indicators that can be used to classify the effects of Blue Economy activities. Adapted from (Okafor-Yarwood et al., 2020)

Full-spectrum sustainability category	Sustainable objectives	Example indicators
Economic	Sustainable livelihoods	Livelihood index, financial empowerment, ownership
	Distribution of access and benefits	Equity, the inclusion of marginalized groups, women, youth and indigenous communities, ownership
Social and Cultural	Health and Wellbeing	Social factors, social development, quality of life
	Sustainable communities	Social capital, social structure
	Ethical practices	Rights of people, respect for indigenous practices and traditions

The adopted approach to the socio-economic assessment relies heavily on literature reviews and stakeholder engagement. Literature identified in Phase I of the project was reviewed. Given the more specific nature of Phase II of the project, in that it focuses on a socio-economic assessment, literature searches have been focused on social data and agencies that may house such data.

An important component of the stakeholder engagement process is to mine for additional projects and data that may be otherwise difficult to obtain. Having a broad network of stakeholders that represent the governmental and non-governmental organisations as well as the private sector is difficult to secure, but highly beneficial. As far as possible, ensuring that social departments and agencies are captured in the stakeholder list, as well as organisations that transcend industries, further fosters the basis for a sound assessment.

In Seychelles, the National Bureau of Statistics is the primary data repository for economic statistics. It also houses social statistics; however, these appear to be less well represented. A summary of the economic and certain social statistics held by NBS can be found in the appendix where selected statistics relating to socio-economics have been extracted from NBS's *Statistical Abstract 2019-2020* (National Bureau of Statistics, 2020c). The Seychelles Fishing Authority (SFA)

is responsible for collecting and reporting on all fisheries data, which is relayed to NBS for aggregated reporting in macroeconomic data reports. Smaller datasets held by agencies, government departments or NGOs will be considered where possible.

Table 4. Social indicators included in Phase I of the BEVTK for Seychelles, showing data shortages and data uncertainties

Social Category	Social Aspect Description	Data Year	Data Source	Data Quality	Social Indicator Value	Status
Corruption	Corruption Perception Index (CPI)	2019	Transparency International. (2020). Corruption Perceptions Index (CPI) 2019	reliable	66.00	Measured
Human Development & Inequality	Human Development Index (HDI)	2018	UNDP (2019). Human Development Data (1990-2018)	reliable	80.10	Measured
	Gender Development Index (GDI)	2018	UNDP (2019). Human Development Data (1990-2018)	reliable		No Data
	Youth unemployment rate (% youth pop)	2020	UNDEP, Human Development Data (1990-2018) / NBS (2020)	reliable	17%	Measured
	Overall unemployment rate (% Pop)	2020	UNDEP, Human Development Data (1990-2018) / NBS (2020)	reliable	4.8%	Measured
	Overall unemployment rate (female to male ratio)	2020	UNDEP, Human Development Data (1990-2018) / NBS (2020)	reliable	0.55	Measured
	Inequality-adjusted Human Development Index (IHDI)	2020	UNDP (2019). Human Development Data (1990-2018)	reliable	79.70	Measured
	Gender Inequality Index (GII)	2018	UNDP (2019). Human Development Data (1990-2018)	reliable		No Data
	Gini coefficient	2020	NBS & World Bank Data	reliable	30.00	Measured
	Child labour (% ages 5-14)	2017	UNDEP, Human Development Data (1990-2018)	reliable		No Data
Illegal actions	IUU (% of population affected)	2020	User defined	guesstimate	15.00	Uncertain
	Piracy (% of population affected)	2020	User defined	guesstimate	2.00	Uncertain
	Narcotic Traffic (% of population affected)	2020	User defined	guesstimate	5.00	Uncertain
	Narcotic use (% of population affected)	2020	User defined	guesstimate	5.00	Uncertain
Poverty, Nutrition, Education	Literacy index	2018	UNDEP, Human Development Data (1990-2018)	reliable	7.50	Measured
	Education Index	2018	UNDEP, Human Development Data (1990-2018)	reliable	7.50	Measured
	Inequality Adjusted Education Index	2018	UNDEP, Human Development Data (1990-2018)	reliable		No Data
	Mean years of schooling, female (years)	2018	UNDEP, Human Development Data (1990-2018)	reliable		No Data
	Mean years of schooling, male (years)	2018	UNDEP, Human Development Data (1990-2018)	reliable		No Data
	Fish, seafood supply quantity (kg/capita/yr)	2017	FAO Food Balance	reliable	58.90	Measured

The socio-economic indicators that were included in the BEVTK Phase I are presented in Table 4. The current statistics are broad and suffer from a lack of data, particularly country specific and recent data. A benefit of using large information portals is that the data can be drawn automatically from specific websites that the BEVTK can be linked with. A shortcoming, though, is that for some countries this data is either only reported on intermittently or may be unreliable, by listing figures as current when they were captured in the past. The user-defined statistics relating primarily to the 'Illegal activity' category require further investigation to ascertain whether they will be usable or not. Further investigation is also required to understand whether any of the data scarce indices can be calculated with data available in country.

Table 5. Socio-economic statistics not included in the BEVTK Phase I that are being investigated as possible indicators of socio-economic Blue Potential

Category	Statistic	Measurement	Possible data source	Applicable to
Poverty, Nutrition, Education	# or % of youth enrolled in Seychelles academies	Count data - BE related academies – STA, SMA	ANHRD	BE wide, specifically Tourism and Fisheries
	Youth enrolled in BE academies, as % of total enrolment in Seychelles academies	Proportion – enrolment in BE academies of all academy enrolments	ANHRD	BE wide, specifically Tourism and Fisheries
	Multidimensional Poverty Index	Reported statistic	NBS	BE wide
Human Development & Inequality	% of Seychellois employed in fisheries sector, in total and by sector	Proportion – Seychellois employed of total employed	SFA	Fisheries
	Proportion of fishing vessels with vessel monitoring systems, in total and by sector – Safety at sea	Proportion – vessels with monitoring systems of total vessels	SFA	Fisheries
	Catch per unit effort as a proxy for time away from family	Reported. Could also be a relative index showing change over time	SFA	Fisheries
	Dependency ratios	Proportion – those outside working population of working population	NBS	BE wide
	Proportion of Seychellois in middle and upper management in Tourism establishments	Proportion – Seychellois employed in higher level positions in the Tourism industry	NBS	Tourism

In addition to the Phase I socio-economic indicators, a preliminary list of possible statistics has been proposed (Table 5) for Phase II of the BEVTK development. The list of statistics is under development. These statistics will be further investigated with certain stakeholders individually, as well as being debated in the national webinar to be held in March. During the webinar, further

discussions may be held for stakeholders to put forward suggestions that they may have for additional, or alternative, metrics.

2.3. Ecosystem Services/Ecological Data and Module

The two primary data sources used for the piloting of the BEVTK were the MSP and the Seychelles National Biodiversity Strategy and Action Plan 2015-2020[4] (NBSAP) (Table 6). Whilst the MSP provided only basic information that had to be interpreted for this project, the Nomination File[5] used identified many more ecosystem services and ecological features and events that will be of interest for a comprehensive BE ecological estimate in the future. The Seychelles National Biodiversity Strategy and Action Plan 2015-2020[6] was also an important source of ecological data, providing estimates of coral reef and mangrove forest areas.

Table 6: Data sources used for estimates of the ecological dimension in Seychelles' BEVTK

Data source	Data description	Statistics	Data type
Marine Spatial Plan	2019 Nomination File	Seagrass cover (km^2)	Ecological
Government of Seychelles	Seychelles' National Biodiversity Strategy and Action Plan 2015-2020	Mangrove cover (km^2) and coral reef extent (km^2)	Ecological

The seagrass data, sourced from the MSP, required calculations based on estimates of cover within each of the MPAs and the area covered by each MPA itself. The MSP seagrass data is based upon older (2004) data, which also provides a seagrass map for Seychelles EEZ, both in and out of MPAs. Constraints did not allow for the analyzing of GIS data to measure spatial extent outside of MPAs. The calculated estimate is based on the best possible data at the time and does not include seagrass meadows that fall outside of the network of MPAs, i.e. in the remaining 70% of Seychelles EEZ.

Mangrove and coral reef area figures were also based upon the most recent and supposedly accurate data, having sourced the figures from national documents. However, the data would be older than 2014, again bringing into question its quality. No calculations were required for the reporting of these data.

The BEVTK does allow for the reporting of the health of ecosystem service or ecological data. This allows for the discounting of the value of services provided due to degraded ecosystems. Having

[4] Government of Seychelles. (2014). *Seychelles National Biodiversity Strategy and Action Plan 2015-2020*. Editors: John Nevill, Jacques Prescott, Nirmal Jivan Shah & Marie-May Jeremie, Victoria, Mahé.

[5] Ministry of Environment, Energy and Climate Change. (2019). *Nomination file to designate, and re-designate, areas for protected area status under the National Parks and Nature Conservancy Act (NPNCA), as amended (1982).* MEECC: Victoria, Mahé. https://seymsp.com/outputs/phase-3/milestone-3-nomination-file/

[6] Government of Seychelles. (2014). *Seychelles National Biodiversity Strategy and Action Plan 2015-2020*. Editors: John Nevill, Jacques Prescott, Nirmal Jivan Shah & Marie-May Jeremie, Victoria, Mahé.

this ability is useful, particularly in the case of Seychelles coral reefs, as they have been damaged extensively over time due to coral bleaching. Thus, the different services provided would be affected.

It should be noted that the MSP initiative identified many ecosystems within Seychelles EEZ, including sea mounts, canyons, important spawning sites, aggregation sites and more, all of which contribute to the ecological value of the Blue Economy. Consequently, there exists a thorough starting point of ecosystem services to be explored and valued to ensure a comprehensive ecological value of Seychelles Blue Economy.

As the management of the MSP unfolds and monitoring plans are developed, there will be increased data available for the ecological component of the Blue Economy. Seychelles is currently debating whether to establish an independent entity to implement the MSP rules and regulations, as well as to develop scientific measures and data collection to support the monitoring of Seychelles' ocean space. The entity, currently suggested to be the Seychelles Ocean Authority, is expected to be reviewed by parliament with the intention for it to be active no later than 2025[78]. Currently the coral reef policy and strategy and action plan is being developed and there is an ongoing project valuing Seychelles ecosystem services associated with is MPAs. These and other initiatives are likely to provide outputs that could be included in future estimates of Seychelles Blue Economy.

[7] Seychelles Ocean Authority Bill. 2020. *Draft Seychelles Ocean Authority Bill.* Mahé, Seychelles.

[8] http://www.seychellesnewsagency.com/articles/13790/Seychelles+Marine+Spatial+Plan+eyes+creation+of+new+independent+ocean+authority

Chapter 3: ANALYTICAL RESULTS AND DISCUSSION (WIP)

3.1. Preliminary Analytical Results

The preliminary results from the BEVTK show that the Blue Economy contributes substantially to Seychelles. The conservative economic estimate shows that, using value added figures from 2018, the BE in Seychelles comprises 30.6% of GDP, being valued at $495M. The wages that the BE generates are approximately 10.4% of 2018 GNI and the BE is responsible for approximately 45% of all formal employment. The ecological summary shows that the values of ecosystem services associated with mangrove forest, coral reef and seagrass meadows are approximately $48B, or almost 30 times greater than Seychelles' GDP in 2018. The socio-economic results show that Seychelles is a developed country with very high adult literacy rate (98%). Living standards are high with almost all nationals having access to electricity (97%) and drinking water and sanitation (93%), yet 25% of the population are reported to live below the poverty line, yet inequality is reportedly relatively low with a Gini coefficient of 30. The country is food secure with less than 10% of households experiencing food insecurity in 2017. Reliance on fish is among the highest internationally as the average annual per capita consumption of this protein source is 58.9kg. In non-university higher education learning centers, 20% of students are enrolled in institutions with a direct link to Seychelles Blue Economy.

Economic Dimension

The economic value estimated in these preliminary figures are the result of scrutiny of several publicly available data sources. The value, as mentioned in the methodology, is a conservative estimate of Seychelles' BE. Given that Seychelles is an island nation heavily reliant on its marine resources either through extraction or through aesthetics, there is concern that this figure could be too conservative. Most economic activities in Seychelles have ties with the marine environment at some degree of separation, thus instead of considering secondary links and inflating the value, the conservative, direct link approach was used.

Aside from conventional shortcomings with GDP data, various gaps exist in the current SNA that are particularly applicable to the BE context. Informal economies and those with inadequate reporting exist within the nation, with much of this information not captured. The artisanal fishery is reputed to be small in direct value added to the economy, however it is a significant employer and in terms of fleet size. Being a primarily cash-based economy, it is expected that there are activities and payments that are not captured in the formal economy. This includes the cash sales of fish and marine species at roadside landing sites that are only intermittently monitored. In the tourism and charter industry there is the presence of informal employment on various types of vessel in which the workers are paid in cash and not bound by employment contracts. These, and other gaps, elude formal national accounting and hence inclusion in BE estimates.

The accuracy of the economic component will be improved as future initiatives are completed, such as the SUTs and satellite accounts mentioned previously. Due to the sensitive nature of financial reporting, in particular in a small country with few entrants in some industries, disaggregated reporting of data is discouraged. Consequently, to create more accurate estimates of Seychelles BE, the BEVTK should be administered by personnel with access to disaggregated economic data. Institutions that could adopt this role include NBS and the Department of Blue Economy.

Socio-economic Initiatives with Potential to Impact the Blue Economy?

The Seychelles economy, like many countries vulnerable to external shocks, is under severe pressure. In the third quarter of 2020 Seychelles economy saw a contraction of 18.6% year-on-year, though there was slight growth relative to the second quarter of 2020 (National Bureau of Statistics, 2020b). The significant downturn in tourism during 2020 has been the primary contributor to the economic contraction. The year 2020 also saw the transition of power for the first time since independence in 1976 with the opposition party, Linyon Demoktratik Seselwa (LDS), coming into power. The LDS government under President Ramkalawan has been presented with a difficult task in terms of an economy under severe strain, and limited resources with which to mitigate the difficulties. International aid such as a World Bank loan of $15 million aimed at supporting health, social protection as well as the private sector will have brought much needed support.

The new government has appeared to be active and focused. It is acting on several inefficiencies that exist within the country, such as the public sector wage bill and the labour force. The government is streamlining agencies and departments to reduce redundancies. It is further aiming to reduce the number of foreign nationals employed in the government sector. The issuing of Gainful Occupation Permits is under strict review with only specific skills being considered. This signals governments belief in their labour force, a promising signal for the country's social wellbeing, provided any valuable skills lost are replaceable from the local workforce. These current actions counter data from 2019 which revealed high skills mismatches, and hence the need for businesses to look abroad for employment (Central Bank of Seychelles, 2020), an issue that may see the need to once again open up the labour market to international entrants. Business leaders indicated that the local labour market was unable to provide the skills necessary to complete their operations as required (Central Bank of Seychelles, 2020), in particular within the larger hotel establishments. Consequently, it is expected that more job opportunities will present themselves in coming months, increasing the potential for employment of Seychellois in parts of the Blue Economy. In order for the government's logical approach to decrease its reliance on the foreign labour force, the national labour force will have to embrace the working conditions and working hours of the different sectors.

At the heart of potential in a labour force is education and will. In a continental outlook report, it was revealed that focus on skills development and entrepreneurship would assist in Seychelles in diversification of its economy, as well as more inclusive growth (African Development Bank et al., 2017). Several training facilities exist in Seychelles, known as 'Professional Centers' (PCs) (**Error! Reference source not found.**). There is a high diversity of programs available to Seychellois at the PCs, which are labelled as tertiary institutions. Two of the PCs provide skills specific to the Blue Economy, namely Seychelles Maritime Academy and Seychelles Tourism Academy. Given the importance of these two industries, as well as their size relative to other sectors, there is the possibility that these PCs could be regional leads in training, one means of ensuring high standards of training. However, with the fishing industry struggling with continuity and trained Seychellois youth not being employed in the tourism sector, there appear to be gaps present. Two possible reasons for the gaps include: the highest performers take their skills abroad, and; unfavourable working conditions, either due to abnormal hours and transport issues or due to harsh working environments. An observation that is of concern in the semi-industrial long-line fishing industry is that there is little to no succession of Seychellois, with most jobs being absorbed by foreign nationals such as Sri-Lankans.

Entrepreneurship is considered to be an important means of unlocking diversification in Seychelles economy (African Development Bank et al., 2017). In spite of Seychellois being considered as having an entrepreneurial attitude, entrepreneurship remains muted in the country. The Seychelles Conservation and Climate Adaptation Trust (SeyCCAT), a public-private trust fund that administers grant money from Seychelles debt for nature swap and the blue bond. These funds are required to be used specifically for projects relating to Seychelles Marine Spatial Plan (MSP). Annually, the trust fund is expected to disburse $700,000 of grant money to organisations or individuals who have blue economy projects that align with the trust's mandate. To date, SeyCCAT has awarded 41 grants and disbursed over $2 million in funds. Enterprise Seychelles Agency (ESA) has recently been awarded a grant for a project that aims to train entrepreneurs and micro, small and medium enterprise (MSME) owners in the blue economy. An aim of the project is to engage with and support fishers and their wives, whilst providing financial management support which is a skill that is often lacking with artisanal fishers. A possible indicator that could be used to quantify the impact of such socio-economic projects funded by SeyCCAT would be to capture the value of SeyCCAT's socio-economic projects and express them as a proportion of the total value of projects funded each year. A shortcoming of this indicator could be the biases that arise if there are changes in funding distribution policies.

Citizen Engagement Platform Seychelles (CEPS) supports civil society organisations (CSOs) through their administration, communications and planning departments. CSOs are estimated to attract €3.5 million per year. CSOs are an important part of a nation as they provide support to society, often through environmental, social and health support projects. They support human wellbeing, a factor that is important for an engaged workforce. An indicator that could be developed in line with CSOs is the number of CSOs per 1,000 of Seychelles working age population.

Ecological Dimension

Seychelles is blessed with an abundance of natural capital and resources. Recently the country has become increasingly aware of the importance of understanding and managing these resources. This is in part due to: the Seychelles Debt for Nature Swap, which required Seychelles to conduct a comprehensive EEZ-wide marine spatial plan (MSP), which has since resulted in Seychelles designated 30% of its EEZ as marine protected areas in March 2020; the SWIOFish3 program which is assisting Seychelles take steps toward transitioning to a more sustainable BE; an active Ministry of Agriculture, Climate Change and Environment (MACCE); and the establishment of a Department of Blue Economy, among others.

The MACCE and SWIOFish3 have commissioned a consultant, The Nature Conservancy, to conduct a project undertaking an ecosystem valuation of the MPAs and coastal resources. Such information could assist the BEVTK in the future, providing a starting point for natural ecosystem and natural capital values. A shortcoming is that this project focuses on MPAs, excluding open access areas.

SeyCCAT, together with University of Oxford and University of Seychelles is conducting a coastal blue carbon project focusing on estimates of the carbon stored by seagrass in Seychelles' EEZ. This project is being funded by Pew Charitable Trusts. A second coastal blue carbon project is being conducted by the MACCE and the World Bank, which seeks to map the mangroves of Seychelles EEZ as well as the carbon stored by these forests. Together the outputs of these projects will be able to be used in its revised Nationally Determined Contribution to the UNFCCC (NDC) calculations, as well as to establish whether blue carbon trading would be feasible by the country. These data are not yet available but will be important for the BEVTK once available, particularly as they delicately cross all three aspects of a BE – social, environmental and economic.

The United Nations Development Program's Biodiversity Finance Initiative (BIOFIN) conducted a series of investigations in Seychelles with a view to assist with implementing biodiversity financing, however Seychelles' graduation to high income status saw them lose the development assistance of this program, as well as many others. Nonetheless, BIOFIN identified a series of possibilities for financing biodiversity protection and management[9].

Natural capital and ecosystem data is going to be challenging to include in the BEVTK due to the number of different agencies that collect the data, the effort required to collate the data and the data often not being standardized. However, as more monitoring, stock assessments and baseline surveys unfold, the natural capital and ecosystem data will be captured and potentially be usable, particularly if the Seychelles Ocean Authority, or its equivalent, is established. Having sound ecological data will result in increased awareness of the importance of such initiatives, particularly

[9] BIOFIN. 2015. BIOFIN Seychelles: Policy and Institutional Review. UNDP.
http://www.biodiversityfinance.org/index.php/knowledge-product/seychelles-policy-and-institutional-review

in a country such as Seychelles whose very existence is inextricably tied to the health and functioning of its natural resources.

Conclusions and Way Forward

This interim report provided the scope for exploration of different means of measuring socio-economic potential in Seychelles. It provided the opportunity for more concentrated effort at understanding what data available, and what metrics may be of use to Seychelles, whilst attempting to make the indicators relevant to other nations Blue Economies. The indicators presented are by no means a complete list, nor will all be used going forward. Further stakeholder engagement is necessary to uncover whether there are

More work needs to be done to create a sound methodology for discounting, or disaggregating, values for the Blue Economy. This will require robust reasoning yet needs to be simple and replicable to ensure its continued use, a factor that should be applicable across the board to all BEVTK oriented data computing and input.

For the BEVTK to be successful in the long run, communication and facilitation is required between what data can be used for the ecological component, and in what format, it should be captured. Baseline and monitoring projects are set to commence imminently with Seychelles new network of MPAs, meaning an opportunity to establish this communication is looming. That said, Seychelles, and the BEVTK, could benefit from the country establishing a set of ocean accounts or similar, from which natural capital information could be easily extracted and soundly summarized by the BEVTK for decision-making.

The following actions should be executed in order to ensure the successful culmination of this Phase II project.

1. Host virtual national consultation/webinar on 21 April 2021;
2. Conduct further testing of the socio-economic indicators
    a. Ascertain which are realistic and replicable
    b. Obtain feedback on the indicators from specific stakeholders, such as NBS
3. Collate and respond to comments from the webinar; and
4. Submit final assessment report.

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Appendices

Appendix 1: World Bank's Components of the Blue Economy

Table 7: Components of the Blue Economy

Type of Activity	Ocean Service	Industry	Drivers of Growth
Harvest of living resources	Seafood	Fisheries	Food Security
		Aquaculture	Demand for Protein
	Marine biotechnology	Pharmaceuticals, chemicals	R&D for healthcare industry
Extraction of non-living resources, generation of new resources	Minerals	Seabed mining	Demand for minerals
	Energy	Oil and gas	Demand for alternative energy sources
		Renewables	
	Fresh water	Desalination	Demand for fresh water
Commerce and trade in and around the oceans	Transport and trade	Shipping	Growth in seaborne trade; International regulations
		Port infrastructure and services	
	Tourism and recreation	Tourism	Growth of global tourism
		Coastal Development	Coastal urbanization
			Domestic regulations
Response to ocean health challenges	Ocean monitoring and surveillance	Technology and R&D	R&D in ocean technologies
	Carbon sequestration	Blue Carbon	Growth in coastal and ocean protection and conservation activities
	Coastal protection	Habitat protection and restoration	
	Waste disposal	Assimilation of nutrients and wastes	

Source: World Bank (2016). Oceans 2030: Financing the Blue Economy for Sustainable Development (http://pubdocs.worldbank.org/en/446441473349079068/AMCOECC-Blue-Economy-Development-Framework.pdf)

Appendix 2: Seychelles' Professional Centers

Table 8. Seychelles Professional Centres and their parent Ministries

Seychelles Professional Centre		Ministry	Direct link to BE?
NIHSS	National Institute for Health and Social Studies	Ministry of Health	N
STA	Seychelles Tourism Academy	Ministry of Tourism	Y
SBSA	Seychelles Business Studies and Accounting	Ministry of Education and Human Resource Development	N
SIT	Seychelles Institute of Technology	Ministry of Education and Human Resource Development	N
SMA	Seychelles Maritime Academy	Ministry of Education and Human Resource Development	Y
SIAD	Seychelles Institute of Art and Design	Ministry of Education and Human Resource Development	N
SIAH	Seychelles Institute of Agriculture and Horticulture	Ministry of Education and Human Resource Development	N
SITE	The Seychelles Institute of Teacher Education	Ministry of Education and Human Resource Development	N
SIDOL	The Seychelles Institute of Distance & Open Learning	Ministry of Education and Human Resource Development	N
TGMI	The Guy Morel Institute	Ministry of Education and Human Resource Development	N
UniSey	University of Seychelles	Ministry of Education and Human Resource Development	Y/N

Source: https://www.tec.sc/tertiary-education-institutions

Appendix 3: Seychelles Economic Activities and Preliminary Socio-Economic Datasets

Table 9: Seychelles main economic activities and those that are part of the Blue Economy

Economic activity	Blue Economy activity
Agriculture	No
Aquaculture	Yes
Coastal Tourism	Yes
Curio Trade	Yes
Fisheries	Yes
Forestry	No
Mining	No
Shipping and Ports	Yes

Adapted from: UNEP-GEF-WIO-LaB Project (2008)

Table 10: Current socio-economic datasets held by NBS

Data	Reporting frequency	Latest release
Multidimensional Poverty Index		2020 – 2019 data
Poverty Profiling Report		2019: 2017/2018 data
Visitor Safety and Security Survey	Quarterly	Q4 2017 data
Crime, Justice and Security	Quarterly	Q3 2020 data
Unemployment statistics	Quarterly	Q3 2020 data
Population and Vital Statistics	Biannual	H1 2020 data
Population Distribution Maps		No date
Employment and Earnings	Quarterly	Q3 2020
Living Conditions Survey Report		2014: 2011 data
Household Budget Survey	Approx. every 5-7 years	2013
Food Insecurity Experience Scale	Ad hoc	2018: 2017 data
Population and Housing Census	Approx. every 10 years	2012: 2010 data
Labour Force Survey	Ad hoc	2013: 2011/2012 data

Source: National Bureau of Statistics website: https://nbs.gov.sc/

Table 11: Potential future data sources, in addition to current sources

Data source	Data description	Statistics	Data type	Possible availability
NBS	Tourism Satellite Account	Gross Value Added, employment	Economic	2021
NBS/ SFA	Fisheries Satellite Account	Wages, employment, gender equity	Economic and Social	2022
SFA	Various stock assessments	Health of fishery	Ecological and Social	

Table 12. Excerpts from the National Bureau of Statistics' Statistical Abstract 2019-2020 that have socio-economic links.

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