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FORUM

"There is no Green without Blue": An analysis of the importance of coastal and marine resources to the development of Green Economies by Caribbean SIDS

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Abstract: *A worldwide transition to a low-carbon, resource-efficient Green Economy will not be possible unless the seas and oceans are a key part of these transformations. The marine environment provides a range of services including food security and climate regulation to nutrient cycling and storm protection. Despite these services, there has been increased degradation from inter alia pollution, overfishing and climate change. This affects the livelihoods of people who depend directly and indirectly on these coastal and marine ecosystems for goods, services and jobs. Small Island Developing States (SIDS) are a distinct group of developing countries facing specific social, economic and environmental vulnerabilities. The sustainable use of coastal and marine resources is a major challenge for SIDS and oceans and fisheries issues should be prioritized on any national and regional sustainable development agendas. The transformation of SIDS Economies will ultimately depend on the transformation of attitudes, behaviors and actions of their people.*

Keywords: Caribbean, Marine, Economy, SIDS, Development, UNEP

Most of the world's international trade travels by sea. Sea floors yield important minerals, sand and gravel. Technology is beginning to tap new sources of energy from ocean tides, waves and wind. Coastal habitats also provide firewood, fibers and other resources,

are natural carbon sinks and protect coastal developments from storms and coastal surges. Tourism relies on clean beaches, safe water and abundant marine life, and provides many coastal communities with jobs, income and foreign exchange.

But human impacts on coasts and oceans have destroyed 20 per cent of mangroves and now put more than 60 per cent of tropical reefs under immediate direct threat.[1] Today, more than 30 per cent of the world's fish stocks are over exploited, depleted or recovering from depletion and over four oxygen-poor 'dead zones' exist in the world.[2]

Small Island Developing States (SIDS) are a distinct group of developing countries facing specific social, economic and environmental vulnerabilities. SIDS 'share similar sustainable development challenges including small population, limited resources, susceptibility to natural disasters, vulnerability to external shocks and excessive dependence on international trade.'[3] Their growth and development is often further stymied by high transportation and communication costs.

SIDS were recognized as a special case both for their environment and development at the United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit held in Rio de Janeiro, Brazil (3-14 June, 1992). In 1994, the first Global Conference on the Sustainable Development of SIDS was held in Barbados under the auspices of the United Nations. This lead to the adoption of the Barbados Programme of Action (BPOA) and identified several priority areas, including management of coastal and marine resources. Ten years after Barbados, the Mauritius Strategy for the further implementation of the BPOA, underscored the need to mobilize domestic resources, attract international flows, and promote international trade as an engine for development. In 2012, at a conference to mark the 20th anniversary of the Earth Summit, discussions focused on how countries would develop a green economy in the context of sustainable development and poverty eradication and the institutional framework for sustainable development.

SIDS have the potential to benefit from green economy approaches but any such approach needs to consider how to improve the management of coastal and marine resources which form the life blood of many of these countries. The economies of the Caribbean region are more dependent on natural resources and well functioning ecosystems then many other parts of the world.[4]

The term 'Green Economy' has emerged to describe a form of development that addresses the multiple economic and environmental challenges confronting the world. UNEP defines a green economy as one that results 'in improved human well-being and social equity while significantly reducing environmental risks and ecological scarcities. This definition is amplified further to mean an economy that is also 'low carbon, resource efficient and socially inclusive'.[5]

While there is no consensus on the concept of a green economy for SIDS, individual Caribbean SIDS have and are interpreting the green economy concept according to their individual national sustainable development priorities and economic, environmental and social conditions.

The long term development of Caribbean SIDS and any green economy approach will be inextricably linked to the management of the coastal and marine resources of the Caribbean Sea. The high dependence on the sea for vital economic sectors such as tourism and fisheries, for maritime transportation, and for shoreline protection means that efforts to transform the economic development pathway in Caribbean SIDS towards a Green Economy will ultimately depend on how effectively they manage their fragile and vulnerable coastal and marine resource base.

KEY ENVIRONMENTAL CHALLENGES FOR CARIBBEAN SIDS

The three key challenges to managing the living resources of the Caribbean Sea are pollution, overfishing, and habitat degradation including community modification. These issues are compounded by global, regional and local impacts of climate change and climate variability. But the main root causes contributing to these issues are: weak governance, inadequate access and availability of data and information, lack of public awareness and stakeholder engagement, inadequate consideration of the value of ecosystem goods and services, population and cultural pressures, and trade and external dependencies. Some of the key environmental stressors are reflected as follows:[6]

- Over 75 per cent of pollution of the Caribbean Sea is from land-based sources;
- Over 80 per cent of Sewage enters the Caribbean Sea untreated;
- 65 per cent or 275,000 tons of Solid Waste is disposed in open dumps, rivers or directly into the Caribbean Sea;

- Over 100,000 tons of sediment per annum ends up in the Caribbean Sea;
- Diseases caused by pollution of coastal waters due to sewage costs billions of US dollars annually;
- Overfishing threatens over 60 per cent of Caribbean reefs, and
- Over 1/3 of coral reefs are within 2km of the coast making them highly vulnerable.

THE GREEN ECONOMY

There is no one green economy in the world. As the nature of development challenges and availability of resources differ between countries, so does the vision, process and pace of greening the economy. It is not a product but a process and each region, country, company and community will have to define its own pathways to greening its economy.

A recent CANARI Policy Brief identified as one of their key messages: 'A Green Economy in the Caribbean context aims for long-term prosperity through equitable distribution of economic benefits and effective management of ecological resources; it is economically viable and resilient, self-directed, self-reliant and pro-poor'.[7]

Given that Green Economy approaches call for redirecting investments away from activities that increase environmental risks and scarcities – more effective management of the region's vulnerable coastal and marine resources must be at the centre of any green economy approach for Caribbean SIDS.

A recent assessment of the economic and social impacts of climate change on the coastal and marine sector in the Caribbean) suggested that the 'development and implementation of programmes aimed at the protection and rehabilitation of degraded fisheries habitats and ecosystems, and the environment in general would have one of the highest benefit-cost ratios as a climate change adaptation strategy for the Caribbean with a Benefit-Cost ratio of 1,228.[8]

BIODIVERSITY

Caribbean SIDS are renowned for their species diversity and endemism but their coastal and marine biodiversity is among the most threatened in the world. The Wider Caribbean is one of 4

biodiversity hot spots with over 50 per cent of species are endemic/unique.[9] Marine and coastal biological resources in particular are important economic, social, cultural, environmental and religious assets.

About 43 million people live on the coast within 30 km of a coral reef. More than 75 percent of the reefs in the Caribbean are considered threatened, with more than 30 percent in the high and very high threat categories. The Wider Caribbean region has over 285 Marine Protected Areas (MPAs), containing 20 per cent of the region's coral reefs. Close to half of all diving tourism in the Caribbean occurs in MPAs.[10]

Currently 30 per cent of reefs are recorded as in decline and up to 60 per cent may be in decline by 2030.[11] The causes of the declines appear to be variable, from overfishing and dredging, disease outbreaks and hurricanes, to el Nino-Southern Oscillation induced bleaching episodes and sedimentation and marine pollution.

Wetlands and mangroves are also declining rapidly by 50-90 per cent in most regions in the past 40 years.[12] Traditionally, sediments and nutrients coming from the land were filtered by mangrove forests and seagrass beds; however the loss of these important areas is widespread throughout the Caribbean.

There is a need for more effective implementation of integrated biodiversity strategies for the sustainable use and management of coastal and marine resources. These must include continued efforts for not just developing integrated coastal zone and watershed management plans and strategies but ensuring that these form part of national development planning processes and land use plans.

FISHERIES, COASTAL DEVELOPMENT AND SHORELINE PROTECTION

Over 200,000 persons are directly dependent on fishing indirectly resulting in revenues of over 2 billion USD per annum. Coral reef-associated fisheries in the Caribbean region provide net annual revenues valued at an estimated US$310 million.[13] Overfishing is the most pervasive direct human threat to reefs and threatens 60 per cent of them followed by coastal development, sedimentation and pollution.[14]

One third of the world's population live in the coastal zone, which comprises an area of only 4 per cent of the total land surface. Urban areas and coastal development are expanding in the

Caribbean region. Growing coastal populations and rising numbers of tourists are adding to the coastal pressures on the marine ecosystems. In the past 15 years, the number of tourist accommodations more than doubled, and numbers continue to increase rapidly in many countries. In just the period between 1994 and 2000, there was a 25 per cent growth in visitor accommodation, with the majority of this growth occurring in coastal areas. The population living within 10 km of the Caribbean coast grew from 36 to 41 million during 1990-2000.[15]

Coastal development in terms of settlements, resort or industrial development reduces the diversity of the coastal vegetation and destroys significant areas such as mangroves. These ecosystems play an essential role in limiting silt and nutrient outflows to the near-shore marine environment, including run-off of sewage animal waste, toxic chemicals and top soil during the heavy tropical rains or from rivers. They also can serve as buffers to protect the shoreline from wind generated storms, provide construction materials, medicines and a huge range of other goods used by communities.

Coastal development including construction, urban run-off, tourist development and sewage discharge threatens 1/3 of the reefs of the Caribbean. Thirty six percent of coral reefs in the region lie within 2 km of inhabited land, making them highly susceptible to pressures arising from coastal populations.[16]
Coastal areas with the greatest population densities are also those with the most shoreline degradation or alteration.

It has recently been estimated that 70 per cent of Caribbean beaches are eroding at rates of between 0.25 and 9 metres per year. It is further estimated that 70 per cent to 90 per cent of the energy of wind-generated waves is absorbed by coral reefs and mangroves (depending on their health status and physical and ecological characteristics).[17] In the Caribbean, over 20 per cent of the coastlines are protected by reefs. If the rate of coral reef degradation continues, it is expected that between US$140 million & US$420 million per year by 2050 in coastal protection will be lost or a reduction of between 10 -20 per cent.[18]

TOURISM

Tourism is one of the world's largest business sectors, growing by a staggering 90 per cent from 1995 to 2010. It is responsible for over

250 million jobs or more than 8 per cent of total employment and accounts for over 9 per cent of the world's GDP.[19]

Tourism is a vital sector of the economies of most SIDS. For more than half of the SIDS, it is their largest source of foreign exchange. The social, economic and environmental well-being of many SIDS is tied to this sector. Tourism receipts represent more than 30 per cent of their total exports; in comparison, the average for the world is just over 5 per cent.[20] Tourists visit SIDS because of the reefs, beaches and unique cultures and ecosystems. Sustaining a viable tourism sector is dependent on maintaining these assets. Climate change presents one of the most significant challenges to the sector. Rising sea levels have can cause loss of land along coastlines of low-lying islands, disrupting economies and livelihoods.

The Caribbean has the largest proportion of people employed in the Tourism Industry – Sun, Sea & Sand and receives over 60 per cent of Divers Globally. In 2004, more than 2.4 million people were employed either directly or indirectly in travel and tourism, accounting for 15.5 per cent of total employment, a proportion nearly twice as high as the global average.[21] Over 25 million persons visit the Caribbean every year including 60 per cent of all divers. In terms of relative size the region was # 1 in GDP Contribution at approximately 30 per cent making it the most dependent globally; # 1 in Government Investment and # 1 in Capital Investment with over 20 per cent well over twice the global average; currently # 3 in employment in 2003 with every 1 in 4 to 6 jobs (20-24 per cent) but projected to be No 1 by 2013 with over 30 per cent.[22]

Tourism and recreation contribute the largest shares of the total economic value of Caribbean coral reefs, which is estimated between US$100,000-$600,000. Annually, tourism contributes an estimated US$105 billion to the Caribbean economy. In 2000, approximately 1.2 million divers visited the Caribbean and the net benefits from dive tourism was estimated to be US$2.1 billion per year with US$625 million spent directly on diving on reefs, with divers typically spending 60-80 percent more than other tourists. The average diver spends about US$2,100 per trip to the Caribbean compared to US$1,200 by the regular tourist.[23]

In the last 20 years, cruise ship tourism has quadrupled worldwide. The Caribbean has over half (55 per cent - 60 per cent) of the global share of cruise tourism and is the most visited cruise destination in the world. More than 50,000 ships and almost 15

million tourists a year visit the Caribbean.[24] Cruise tourism has increased steadily at an annual growth rate of 7.3 per cent, as against 4.9 per cent in land tourism and growth is projected to continue.[25] While new vessels are putting in place improved on board waste management measures, countries of the wider Caribbean must also improve their national institutional, policy and legal infrastructure to deal with ship generated wastes.

The tourism industry should be one of the lead industries in the promotion of green initiatives, being both an industry dependent on natural resources and a major contributor to employment and economic growth. Greening the sector will involve the promotion of principles and initiatives that can be sustained within social, economic, cultural and environmental contexts as the economic benefits derived can be used to address poverty alleviation.

Greening tourism is more than promoting ecotourism. Rather, it requires a shift across the entire industry pertaining to the implementation of policies, practices and programmes that embrace sustainability, focusing on the:

- conservation of natural resources,
- maintenance of the natural resource base including protecting biodiversity and ecosystems;
- use of renewable sources of energy;
- reduction of water consumption;
- maintenance of culture, traditions and heritage and the promotion of cultural tolerance and respect;
- generation of income for local communities; and
- alleviation of poverty in local communities.

For SIDS to derive the greatest possible benefit from the greening of their economies, they will have to adopt comprehensive national tourism plans that are fully integrated with overall national development.

POLLUTION FROM LAND AND MARINE-BASED SOURCES

Improper disposal of solid, liquid and hazardous waste is a common problem for all Caribbean SIDS with the potential for much of the waste impacting directly on the coastal and marine environment. Information systems and baseline data for waste management and pollution control, and the monitoring of the types and quantities of wastes, for both sea- and land-based sources of pollution are important steps to identify appropriate response actions.

In 2011, the Wider Caribbean Region (WCR) produced on average 12.7 million barrels per day representing 18.1 per cent of daily world production.[26] Most of the oil produced within the Wider Caribbean region is shipped within the region resulting in an intricate network of distribution routes. With oil production and transport comes the risk of oil spills.

The waste sector does offer opportunities to develop fiscal and policy incentives and other measures to encourage environmentally sustainable imports and local products with low waste or degradable waste content. Greening the waste sector refers to a shift from less-preferred waste treatment and disposal methods such as incineration (without energy recovery) and different forms of landfilling towards the 'three Rs': Reduce, Reuse and Recycle.

There is a need to implement and strengthen regulatory measures including emission discharge and pollution standards for the reduction, prevention, control and monitoring of pollution from all sources, for the safe and efficient management of toxic, hazardous and solid wastes including sewage, herbicides, pesticides, industrial and hospital effluent, and for the proper management of disposal sites, many of which are located in coastal areas with a high risk of leachate discharging into ground water and the marine environment.

REGIONAL MECHANISMS

In 1976, the Governments of the Wider Caribbean Region (WCR) urged the United Nations Environment Programme (UNEP) to assist them to develop the Caribbean Environment Programme (CEP), within the framework of its Global Regional Seas Programme. The Caribbean Environment Programme was formally established by the Governments of the Wider Caribbean Region in 1981 and is now one of the oldest and most successful of the UNEP administered Regional Seas Programmes. The Wider Caribbean Region (WCR) comprises the insular and coastal States and Territories with coasts on the Caribbean Sea and Gulf of Mexico as well as waters of the Atlantic Ocean adjacent to these States and Territories and includes 33 island and continental countries.

The mission of the CEP is to promote regional cooperation for the protection and sustainable development of the marine environment of the Wider Caribbean Region with the main

objective being the sustainable use and management of the region's coastal and marine resources.

Underpinning the work of the Caribbean Environment Programme is the only regional binding legal instrument within the framework of the United Nations for the management of the Caribbean Sea, the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region also known as the Cartagena Convention (1986).

25 out of 28 Countries of the Wider Caribbean Region are Contracting Parties to the Cartagena Convention and Oil Spills Protocol. As a Regional Convention, the Cartagena Convention Secretariat provides a mechanism for implementing a range of Global MEAs and ensures that projects and activities implemented are adapted to the needs and priorities of the region and approached in an integrated holistic manner.

The Caribbean Environment Programme through the Cartagena Convention and its three Protocols on Oil Spills, Biodiversity and Land Based Sources of Marine Pollution thus has a legal mandate provided by the Governments of the Wider Caribbean for aspects of oceans governance relating to biodiversity management and pollution control.

Today, the activities of the CEP focus mainly on implementation of the protocols, information management and exchange, and environmental education and training. Work is also being done to reduce pollution of the Caribbean Sea through training workshops, production of technical guidelines and manuals, development of integrated management plans, and adoption of national contingency plans for marine emergencies such as oil spills. The region's network of marine parks and protected areas is also being continually strengthened, and a small grants fund is providing assistance to the management of marine protected areas. Significant efforts are ongoing in the development and implementation of multi-million dollar projects funded by the Global Environmental Facility (GEF) that respond to the needs and priorities of the region and for Caribbean SIDS in particular.

RECOMMENDATIONS

To respond effectively to these challenges, there is an urgent need to continue to:

- Strengthen and coordinate legal and institutional frameworks;

- Enhance capacity of countries and regional organisations to mainstream valuation of ecosystem goods and services into decision-making and policy development;
- Develop and coordinate sustainable financing strategies for cost-effective oceans governance;
- Facilitate the preparation of data and information products for use in regional and national consensus-building and decision-making;
- Implement initiatives for sustainable livelihoods by building capacity for diversification, fostering and facilitating viable alternative sources of work and/or improved incomes, and creating added value through improved marketing and sales;
- Strengthen coordination and collaboration among all related projects and initiatives taking place in the region.

Caribbean SIDS must:

- Develop an improved understanding & greater awareness of environmental issues, root causes, impacts & response options;
- Better inform the development & assessment of management policies, strategies & interventions;
- Formulate new legislative & policy initiatives for sustainable resource management & pollution prevention, reduction & control;
- Improve enforcement, decision-making & individual action in the use of natural resources.

CONCLUSION

The sustainable use of coastal and marine resources is a major challenge for SIDS and oceans and fisheries issues should be prioritized on any national and regional sustainable development agendas. The combined cumulative effects of coastal overfishing, marine pollution and coastal development may impact the long-term productivity of the coastal zone. This in turn may lower the capacity of these systems to support long-term human livelihoods in the coastal zone. This challenge requires effective land use planning including fisheries, tourism and coastal infrastructure development.

In moving forward on establishing a coherent mechanism for the sustainable development of SIDS and in particular for the improved governance of oceans, it will be important to carefully analyze the existing institutions and mechanisms, their respective roles and legal mandates, and identify potential areas for overlap, duplication and conflict. It will also be important to identify where the gaps and deficiencies are. In the challenging economic environment that Caribbean SIDS face, emphasis should be on enhancing existing mechanisms and institutions rather than creating new ones and to institutionalize a system for regular review and evaluation of the several projects and activities under implementation in the region.

The transformation of SIDS Economies will ultimately depend on the transformation of attitudes, behaviors and actions of their people. An economy which uses the natural resources (coastal and marine resources) most efficiently, in which growth is driven by production by masses (rather than mass production), and in which benefits of growth are equitably shared is probably not an option, but a necessary condition for the long-term prosperity of the Caribbean region and its people.[27]

NOTES ON CONTRIBUTOR

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NOTES

1 UNEP, FAO, IMO, UNDP, IUCN, World Fish Center, GRIDArendal. 'Green Economy in a Blue World.' 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas.

2 UNEP, FAO, IMO, UNDP, IUCN, World Fish Center, GRIDArendal. 'Green Economy in a Blue World.' 2012. www.unep.org/greeneconomy and www.unep.org/regionalseas.

3 UN-OHRLLS. SMALL Island Developing States – Small Island Big(ger) Stakes, *Chap 1. 2012.*

4 UNEP, UN DESA and FAO. *SIDS-FOCUSED Green Economy: An Analysis of Challenges and Opportunities. 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas*, 7.

[5] UNEP, UN DESA and FAO. *SIDS-FOCUSED Green Economy: An Analysis of Challenges and Opportunities. 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas*, 7.
[6] UNEP CEP. *Background on Cartagena Convention and Pollution Fact Sheets. Accessed.* www.cep.unep.org.
[7] CANARI. Towards a green and resilient economy of the Caribbean. Policy Brief No. 13, 2012.
[8] UN ECLAC. An Assessment of the Economic and Social Impacts of Climate Change on the Coastal and Marine Sector in the Caribbean. Policy Brief LC/CAR/L.409. 2013.
[9] UNEP CEP. *Background on Cartagena Convention and Pollution Fact Sheets. Accessed.* www.cep.unep.org.
[10] UNEP CEP. *Background on Cartagena Convention and Pollution Fact Sheets. Accessed.* www.cep.unep.org.
[11] UNEP CEP. *Background on Cartagena Convention and Pollution Fact Sheets. Accessed.* www.cep.unep.org.
[12] UNEP, FAO, IMO, UNDP, IUCN, World Fish Center, GRIDArendal. 'Green Economy in a Blue World.' 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas.
[13] World Resources Institute. *Reefs at Risk.*
[14] World Resources Institute. *Reefs at Risk.*
[15] UNEP CEP, *Tourism Fact Sheet*. Accessed. www.cep.unep.org.
[16] World Resources Institute. *Reefs at Risk.*
[17] UNEP, FAO, IMO, UNDP, IUCN, World Fish Center, GRIDArendal. 'Green Economy in a Blue World.' 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas.
[18] World Resources Institute. *Reefs at Risk.*
[19] UNEP, FAO, IMO, UNDP, IUCN, World Fish Center, GRIDArendal. 'Green Economy in a Blue World.' 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas.
[20] UNEP, UN DESA & FAO. *SIDS-FOCUSED Green Economy: An Analysis of Challenges and Opportunities. 2012. Accessed. www.unep.org/greeneconomy and www.unep.org/regionalseas*, 7.
[21] UNEP CEP. *Tourism Fact Sheet*. Accessed. www.cep.unep.org.
[22] UNEP CEP. *Tourism Fact Sheet*. Accessed. www.cep.unep.org.
[23] UNEP CEP. *Tourism Fact Sheet*. Accessed. www.cep.unep.org.
[24] UNEP CEP. *Tourism Fact Sheet*. Accessed. www.cep.unep.org.
[25] UNEP CEP. *Tourism Fact Sheet*. Accessed. www.cep.unep.org.
[26] UNEP CEP. *Oil Fact Sheet*. Accessed. www.cep.unep.org