

# 3<sup>RD</sup> High Level Forum (HLF) of Caribbean Ministers Responsible for WASTE



## HLF-3 REPORT



ST. KITTS MARRIOTT  
RESORT & THE ROYAL  
BEACH CASINO.

12th-17th  
October 2019



Ministry of Infrastructure  
and Water Management



**IWEco**

*Integrating Water, Land and Ecosystems Management  
in Caribbean Small Island Developing States*

*#CaringForOurFuture*

In  
Partnership  
with:



Caribbean Community  
Climate Change Centre



Global Water  
Partnership  
Caribbean



Pan American  
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**CaribDA**

Caribbean Desalination Association



*From  
Awareness  
To  
Action*



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*Photo 1: Participants at the 15<sup>th</sup> Annual High-Level Forum on Water at the Caribbean Water and Wastewater Conference 2019, St. Kitts & Nevis*

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## LIST OF ACRONYMS

BCRC	Basel Convention Regional Centre
CARICOM	Caribbean Community
CARICOM	Caribbean Community
CDB	Caribbean Development Bank
CWMAAP	Caribbean Waste Management Action Plan
CERMES	Centre for Resource Management & Environmental Studies
CBP	Community-based projects
EU	European Union
FAO	Food & Agricultural Organization
AFD	French Agency of Development
GIZ	German Agency for International Cooperation
GEF	Global Environmental Facility
GCF	Green Climate Fund
GDP	Gross Domestic Product
GCFI	Gulf Caribbean Fisheries Institute
IWRM	Integrated Water Resources management
IDB	Inter-American Development Bank
IUCN	International Union for the Conservation of Nature
LBS	Land Based sources
LAC	Latin America and the Caribbean
MDG	Millennium Development Goals
NGO	non-governmental organization
NORAD	Norwegian Agency for Development Cooperation
OECS	Organization of Eastern Caribbean States
PAHO	Pan American Health Organization
PES	Payment for Environmental Services
POPs	Persistent Organic Pollutants
PCBs	polychlorinated biphenyls
PPP	Public Private Partnerships
SIDS	Small Island Developing States
SAMOA	Small Island Developing States Accelerated Modalities of Action
SWM	Solid waste management
SLHTA	St. Lucia Hospitality and Tourism Association
SDG	Sustainable Development Goals
CWWA	Caribbean Water & Wastewater Association
CCOA	The Commonwealth Clean Ocean Alliance
COTED	The Council for Trade and Economic Development
IWEco	Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States
COMES	The OECS Council of Ministers of Environmental Sustainability

UNDP	United Nations Development Programme
UWI	University of the West Indies
UNEP	UN Environment Programme
UTECH	University of Technology
WB	World Bank

## EXECUTIVE SUMMARY

The 3<sup>rd</sup> High Level Forum on Waste Management kicked off in St. Kitts & Nevis in October 2019 with representation from ministers, developmental partners, donors and waste practitioners. This forum set out to put into action the outcomes of HLF-3 and the regional agenda on waste management by highlighting the key solid waste issues faced by the islands including emerging issues, the contributions of the tourist sector to waste and identifying opportunities for projects, mobilization of financing and other resources under the theme “*From Awareness to Action*”. Some of the participants expressed that since work has already started, what is needed is continuous effort to build on the present work. The rate of action and the equal distribution of those actions is key to success across the region and one of the focal areas of the high-level forum.

At HLF-2, held in Montego Bay Jamaica in 2018, the Caribbean Waste Management Action Plan (CWMAP) was revised and agreed on. This plan identified 8 areas of priority for action and implementation in the waste sector as follows:

- 1) To improve strategic planning for waste management and prevention
- 2) To improve management of waste infrastructure
- 3) To reduce pollution from waste generation
- 4) To divert resources from landfill sites
- 5) To improve recycling and resource recovery
- 6) To strengthen partnerships and identify sustainable financing mechanisms
- 7) To upscale outreach and communication efforts
- 8) To improve capacity of the management of special waste

Building on this, the main objectives of HLF-3 were:

- 1) To move forward with the actions coming out of the CWMAP
- 2) To understand the hindrances to action in the waste sector
- 3) To highlight training opportunities
- 4) To understand how the Caribbean fits into the international waste agenda
- 5) To share knowledge based on work being done in other islands as well as internationally and draw on lessons learnt.
- 6) To seek out funding and mobilize support toward the setup of waste management projects
- 7) To help practitioners understand how to be effective in their communication campaigns

There were several rounds of panel discussions held where ministers, donors and other partners expressed their main concerns. The major points coming out of HLF-3 were:

- a. The need for collective action at the regional level. This means the standardization of practices such as the creation and adoption of a template for waste separation techniques that results in less waste reaching dumpsites and landfills.
- b. Improvements in knowledge transfer and sharing: Data collection, storage and sharing through the establishment of a regional waste management database is encouraged. This waste information becomes crucial for regional and international projects and for quality control of information at the international level to prevent erroneous communication of waste production statistics of Caribbean countries.
- c. The integration of the CWMAP into projects that are already on-going in the region as well as tapping into projects, trust funds (ProBlue), grants that have been presented at HLF-3 by the international and



regional donors e.g. The European Union (EU), DEFRA UK, Norwegian Embassy, The Caribbean Development Bank (CDB), and the Inter-American Development Bank (IDB).

- d. National level waste projects & proposals need to have the ability to be upscaled e.g. BCRC. This allows also for lessons learnt within particular projects to be adapted widely, resulting in time and cost savings.
- e. The need to engage with the cruise ship industry. In particular, the quantifiable contribution of transient populations to waste production and the implications of implementing a waste tax to be paid by visitors that would be directly reinvested for waste management in those countries.
- f. The extension of the work being done in waste management in the tourism sector to the hospitality industry.
- g. The identification of local opportunities for plastic waste and sargassum use and recycling together with projects to motivate participation. This includes the setup of formal systems of business to harness the local involvement.
- h. Increase in capacity building and training of solid waste management professionals. E.g. using the progress made by the Belize Solid Waste Management Authority. In addition, the introduction of possible specializations for solid waste professionals such as the UNEP training program. These programs should also be guided by the needs of the industry.
- i. Communication and education of waste challenges: the need for more targeted marketing campaigns. E.g. the Clean Seas Project. In most cases the public is aware of the challenges, but the issue surrounds motivating behavioural change. There are cost savings in having standardized regional waste and litter ads and campaigns.
- j. Better legislation and policy reforms: introduction of representative litter fines, plastic and styrofoam importation fines and establishment of extended producer responsibility.
- k. More research done into the community implications of plastic and styrofoam bans, especially the impact and implications for the poorer class of the society.
- l. Adoption of a regional approach to plastic bans: utilization of proven, tested alternatives and initiatives for dealing with PET bottle use at events. E.g. CPL cricket
- m. The need for the development of a regional plan of management for sargassum.
- n. Greater effort and conceptualization on waste disaster management- i.e. The waste left behind after hurricane events. Lessons learnt from the Hurricane Dorian and the Bahamas can be used to chart a plan.

## 1 OPENING CEREMONY OF WASTE MANAGEMENT HLF

### 1.1 CWWA PRESIDENT: MR. MARK BARNETT

Mr. Barnett opened the two-day forum. He indicated that if waste is looked at in the right way it could be the next 'gold'. He noted that in tackling the waste issue in the Caribbean region, support through partnerships are integral. Mr. Barnett reflected on a rotary club clean up that he was a part of that brought to the fore the vast usage amount of single use plastics. The coastline, he noted, is a zone heavily relied on by Caribbean nations, therefore it begs the question of how this problem of single use plastics facing the region is to be tackled? He noted solid waste is a major challenge and highlighted Jamaica as an example of a Caribbean country lacking a properly engineered landfill Mr. Barnett reiterated that waste is a critical subject in the Caribbean region that requires serious thought and action. He also declared that the Caribbean region is not short on ideas, but slow to take decisive action. He indicated that the need is behavioural change toward the treatment of waste in the region

Mr. Barnett emphasised that the CWWA's promotion of waste management plays a major role in influencing the behaviour of citizenry, guiding persons to take personal responsibility for their waste production. He highlighted the United Nations Environment Programme (UNEP) as being one of the major UN agencies that has supported and continues to support the aspect of waste management in the Caribbean region. He also congratulated the UNEP for the work they have been doing as well as the Government of the Netherlands. Mr. Barnett also mentioned the Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (IWEco) project, as another key project.

Mr. Barnett explained that the HLF-Waste Management which was birthed at the 26<sup>th</sup> CWWA Conference in Georgetown, Guyana followed by the second held in Montego Bay, Jamaica (2018) collectively coined 8 areas of priority of action:

- 1) Improve strategic planning for waste management and prevention
- 2) Improve management of waste infrastructure
- 3) Reduce pollution from waste generation
- 4) Divert resources from landfill sites
- 5) Improve recycling and resource recovery
- 6) Strengthen partnerships and identify sustainable financing mechanisms
- 7) Upscale outreach and communication efforts
- 8) Improve capacity of the management of special waste.

He listed some key waste types that need to be dealt with such as: e-waste, medical waste, and pharmaceutical waste. He highlighted that this two-day forum will seek to determine the strategies for the implementation of the 8 key areas listed above. Mr. Barnett thanked the 23 waste management officials, Ministers, as well as the 22 partners and others present for their interest and participation at this HLF-3.

### 1.2 MR. DIDIER TREBUCQ: RESIDENT COORDINATOR AT THE UNITED NATIONS FOR BARBADOS AND THE EASTERN CARIBBEAN STATES.

Mr. Trebucq indicated that this was his first time participating in CWWA's HLF-Waste. He emphasised that the issues pertaining to waste are directly linked to the environmental and climatic vulnerabilities of the Caribbean region. He confirmed that the major issue of marine waste in the Caribbean was confirmed in a

World Bank report specifically looking at marine pollution in the region. He listed some of the statistics arising out of the report, stating that this is worrying. Mr. Trebucq congratulated the CWWA and the partners for prioritising this HLF-Waste and gave the assurance that the momentum and efforts of the Ministers to address and control plastic waste in the Caribbean region have not gone unnoticed by the UN. As part of their commitment to the SDGs, Mr. Trebucq stated the UN has embarked on a reformation process which began in January 2019 with waste management supported. Further the sustainable Caribbean along with the Blue Economy are prioritized by the UN in the region. He reiterated the UN's partnership with the CWWA on the Caribbean Waste Management Action Plan (CWMAAP) which was agreed on in 2018. He indicated that the UNEP supported by the Global Environmental Facility's (GEF), work in the region has been on-going through the Integrating Land, Water and Ecosystem project. In addition, other UN agencies, for example the International Atomic Agency, UNDP and FAO have been working on environmental issues pertaining to waste management of radioactive and nuclear sources, sustainable practices in the fisheries sectors and the prevention of the disposal of obsolete pesticides. He specified that in partnering with One-UN the help of all these agencies as well as their collective knowledge, value, expertise and resources is leveraged. In closing, Mr. Trebucq encouraged those present to address waste management together as a Caribbean community.

### **1.3 MR. ARTHUR EIJS: POLICY ADVISOR- MINISTRY OF INFRASTRUCTURE AND WATER MANAGEMENT, THE NETHERLANDS.**

Mr. Eijs stated that he was happy to be a part of this HLF and to see participants from the financial sector, donor countries and institutions whose inputs and suggestions are welcomed and needed for successful implementation. He went on further to explain that The Netherlands & UNEP started on a collaboration in 2016: *SIDS Approaches to Solid Waste Management and the Circular Economy* with a focus on the Caribbean region. Mr. Eijs expressed that he was happy to see the CWWA leading the way on water & wastewater and conveyed that the HLF-Waste has matured as evident by the increased participation. He hoped that under the CWWA, the importance placed on waste will grow and foster a closer connection between water and wastewater. Mr. Eijs was also present at the 15<sup>th</sup> HLF-Water and supported the mention of the need for the CWWA to strengthen and enhance its links with CARICOM which, Mr. Eijs believes is an integral step forward and will drive greater sustained, systemic, planning, implementation, monitoring and change on regional and national levels. Additionally, he postulated that securing the CARICOM commitment to HLF-Water will motivate synergies with the waste agenda. He emphasised that there is a lot to learn also by bringing experiences from other regions to the Caribbean. He noted that countries from other regions share several of the same priority issues but may work with different approaches and pathways. He stated that this HLF forum is the ground for the exchange of ideas and to identify possibilities for collaboration between governments and through public and private sector partnerships. He thanked Minister Liburd for hosting the conference and the HLF and wished fruitful discussions and deliberations.

### **1.4 MINISTER EUGENE HAMILTON: MINISTER OF AGRICULTURE, HEALTH, NATIONAL HEALTH INSURANCE, HUMAN SETTLEMENT, COMMUNITY DEVELOPMENT, GENDER AFFAIRS, SOCIAL SERVICES, COOPERATIVES AND LANDS, ST. KITTS.**

Minister Hamilton's introduction presented some statistics to highlight the plight regarding waste in the region, stating that this situation is projected to only get worse. He noted that the SIDS in the Caribbean face many challenges including the ability to ensure the population is healthy and productive and that the environment is managed in a sustainable way. He gave a specific example of St. Kitts and Nevis where the green monkeys' natural habitat is threatened by forestry destruction which affects tourism and agricultural sectors by extension. Another example given was the major drought faced by St. Kitts in 2015; claimed to be

one of the worst droughts in 50 years while the island of Dominica was having excess rains. He continued that in tandem with these other challenges, not enough attention has been given to waste management in the region. He identified this HLF forum as an opportunity to bring to light the integral nature of waste management in dealing with the challenge it poses to the region.

In trying to ascertain the reasons for the increase in waste management in each Caribbean country, Minister Hamilton asserted that this may be possibly due to the change in the social and economic fabric, with higher incomes resulting in increased consumption. The long-term strategy required to deal with the waste disposal in a sustainable manner he indicated, cannot be tackled by governments alone and prescribed private sector involvement. He went on to further state that due to the small size of the islands, there is the issue of allocating suitable sites for disposal. Minister Hamilton therefore declared that the solution must be multidimensional. One major target area mentioned was education of children at the primary school level on how to dispose and treat waste. He stated that as a region there is a great opportunity, not just to talk, but an obligation to plan and execute policies and programmes to ensure the region deals with the issues in a timely manner. He closed by encouraging those present to be pragmatic and inclusive in the policies and actions and plans coming out of the HLF-Waste forum.

## **2 BACKGROUND AND CONTEXT OF HLF FOR WASTE MANAGEMENT/ OBJECTIVES OF THE MEETING. MODERATOR: MR. VINCENT SWEENEY**

Mr. Sweeney contextualised the present HLF, explaining how it fits into national and other collective agendas within the region. He declared that the challenge is implementation, not just in the waste but in the water sector as well. He referenced the SAMOA Pathway and the course it has charted for SIDS. He reiterated that within the SAMOA pathway, waste management has been identified as priority with the component management of chemical waste including hazardous waste. He also noted that the SIDS have been very active in getting the agenda of the SAMOA pathway together and therefore have an obligation to respond to it.

Further, Mr. Sweeney recognised the interest of the Dutch government in the Caribbean region. He explained that the UNEP-Dutch collaboration is currently taking place globally and is a bilateral agenda carving out a niche for Caribbean SIDS. Mr. Sweeney stated that the interest of the Netherlands is to bring the Dutch Caribbean closer to the rest of islands for enhanced collaborations and to utilise experiences. This collaboration mentioned led to a meeting in Curacao in 2016 and resulted in the Caribbean Waste Management Conference (2017) in Jamaica. This conference became the backbone for the incorporation of the high-level forum for waste into the CWWA agenda. Mr. Sweeney explained that the work in waste management is framed around regional agendas including the CARICOM strategic plan. He mentioned that the CWWA, IDB and others have had waste management as part of their agendas, which helps to point to some of the challenges and priorities that are collectively agreed upon.

The Caribbean Waste Management Action Plan (CWMAAP), according to Mr. Sweeney is a compilation of all the work done and on-going in the region. He explained that a zero draft was developed and presented in Guyana (2017) and needed further work. As a result, in 2017-2018 the CWMAAP document was reviewed and revised with collected input from the countries and partners. The revised CWMAAP was later adopted at the HLF-2 Waste in Montego Bay, Jamaica (2018). He indicated that since 2018, there has been a strong mandate by ministers and other representatives to move the CWMAAP forward. He confirmed that, in this regard, the CWWA has been very active in working with countries, development partners, and donors to try to mobilize resources to move the CWMAAP agenda forward. The IWEco Project was mentioned as supportive, and to have already integrated the CWMAAP into their project. He highlighted also that compared to 2018, there has been a significant increase in the number of partners and therefore, the action plan can be easily plugged into their agendas.

Mr. Sweeney articulated that the cause behind HLF-3 is to remind everyone that CWMAP still exists, and that work is progressing. He indicated that HLF-3 should mobilize support from those that are present for the first time. Mr. Sweeney then thanked Mr. Ronald Roach and his team for moving the CWMAP forward and galvanizing support. He went on to state that the CWMAP is not a static document and that it will be updated as new challenges arise that need to be addressed; for example, the Sargassum and plastic waste issues. The direction of thought, according to Mr. Sweeney should be how waste management professionals can provide solutions. He ended by looking forward to productive HLF-3 discussions and commitment to further action.

## 2.1 SESSION: OVERVIEW OF KEY SOLID WASTE MANAGEMENT ISSUES FACING THE CARIBBEAN.






### PANELISTS: MR. JORDI PON, MR. RONALD ROACH, MR. PHILLIPPE COMLAN

#### 2.1.1 Mr. Jordi Pon – An Overview of Key Solid Waste Management Issues facing the Caribbean

Mr. Pon stated that the UNEP is mandated to look at environmental issues, as in this case, waste management. He gave examples of work being done and important publications such as The Waste Management Outlook for Latin America and the Caribbean released in 2018 and The SIDS Waste Management Outlook released in 2019.

Mr. Pon further explained that the *SIDS Waste Management Outlook* is intended to be relevant to all 58 SIDS around the world and is targeted particularly to decision-makers. He stated that this report is based on the circular economy framework which views waste as a resource. The main findings show that in island nations, the per capita waste generation is 48% higher than world average. The compositions which are consistent with the regional average shows that organic waste dominates with 46%, followed by plastic and paper. Mr. Pon acknowledged that the UNEP is especially focussed on organic waste management. Further, he indicated that in the Caribbean there have been improvements in the waste collection rate, which currently stands at around 85% with some variation among territories. On the other hand, he stated that recycling is still quite low and difficult to measure. He indicated that the main reason recycling is low is due to in many instances recycling programmes are not yet fully in place. According to the data referenced by Mr. Pon, 14 million tonnes/ year of waste are generated in the Caribbean, dominated by the larger islands such as Jamaica and Dominica with the average per capita rate of waste produced at 1.3 kg/ capita /day He noted that the effect of transient populations do affect these values and was found to be about 10% of the total. Associated problems with solid waste management according to Mr. Pon regarding collection such as outdated collection vehicles and low collection rates are major issues particularly affecting marginal and rural areas. In terms of disposal, Mr. Pon stated that governance issues such as infrastructure challenges and the problem of illegal dumping are at the forefront. In terms of recycling, the report states that the main factors are high shipping costs, lack of responsibility beyond export, high export taxes on recyclable waste and collection difficulties from remote islands, among others. With regards to dumpsites, approximately 145, 000 tonnes/per day go to landfills with resulting health and environmental impacts. Although there is a lot of informal recycling, Mr. Pon stated that there is no differentiation between recycling and recovery. Figure 1 lists the priority waste streams according to the UNEP, with opportunities for addressing.



SIDS Priority waste streams		
Waste Stream	Challenge	Examples of what can be done
 Hazardous waste	Lacking capacity & cost effectiveness	Regional cooperation, enforce legislation & regulations, & Conduct Audits
 Construction & demolition	Asbestos dangers (low awareness)	On-site waste separation, reuse crushed stones & concrete as base Material
 Plastic waste	Lack technologies to manage plastic waste onshore	Educate consumers, Ban/levies on single use plastic
 Tyres waste	Require alternative solutions to landfilling & open burning	Adopted ESTs; Example Tyre-derived aggregates (material recovery)*
 Disaster waste	High volume per occurrence, Increase rate of occurrence	Targeted training, preventative actions to deconstruct unstable buildings

\* For energy recovery: convert waste tyres in conventional fuels or recycle them in steel production

Figure 1: The SIDS Priority Waste Streams

Mr. Pon stated that what is required is an integrated approach so that all dimensions are considered such as governance to enforce legislation, the financial aspect (budget, incentives and plan investments), technologies that are most suitable and appropriate to fit the need as well as stakeholder engagement (refer to figure 2). One path to solution (refer to figure 3) is to look at models for waste export such as for example those proposed for the Pacific for the establishment of sub-regional collection centres to transport waste out of the region. One such example for the Caribbean is a plant in Honduras that imports plastics from Jamaica.

**Waste management in the Caribbean: challenges**

- Increased generation and complexity of waste
- Poor waste management practices are still present (open dumping, littering)
- Small population, limited land and remoteness
- Limited financial, institutional and human resources



- Human health risks, e.g. vector-borne diseases
- Environmental pollution, e.g. marine litter
- Economic impacts, e.g. loss of amenity
- Loss of valuable resources



Figure 2

**Waste management in the Caribbean: opportunities**

- Recovery of valuable resources and energy
- Health and environment benefits
- Climate change mitigation and adaptation
- Clean communities/cities, beautification
- Economic growth and green jobs
- Regional cooperation:
  - ✓ Best practices
  - ✓ Economies of scale



Figure 3

### 2.1.2 Mr. Ronald Roach – Key Solid Waste Management Issues & Some Solutions

Mr. Roach started by giving a statistic that the average person generates their own body weight in waste every 6 weeks! He went on to discuss some of the practical challenges that waste practitioners face:

- Waste build up in front of residences- this a governance challenge; the cost to manage waste and for proper operations of waste management facilities is not attributed.
- Education- Public education on littering is needed. Education of manufacturers in terms of their responsibility to their products and educating the government & officials on their responsibility also is critical.
- Operational challenges- Issues surrounding the leachate from landfills as an example.

- Misinformation: e.g. the Forbes article that stated incorrect information about St. Lucia and Trinidad's waste production. Information sent to international agencies should be correct and put into context.
- Financial vs. Legislative systems: e.g. Payment for environmental services (PES) such as PET bottles being exchanged for train tickets in Rome. How feasible are these methods for the Caribbean SIDS without legislative systems being put in place?

Mr. Roach went on to highlight what can be learnt from waste professionals working together for mutual benefit. He listed some common solutions and opportunities for collaboration:

- A shared database of waste management information- this data needs to be shared and made available for analysis and use in publications etc.
- Templates for waste characterization in the Caribbean: each country has their own method of waste characterization, however this doesn't allow for proper comparisons to be made. This also holds true for recycling and waste energy.
- Opportunities for collaboration: further exploration and feasibility studies can help in understanding how to go about a shared approach.
- Training and Development: There is a need for technical cooperation. Belize's landfill site is one such example of a case that can be learnt from. There is need for training of landfill managers by other countries that are succeeding. These can also take the form of online training that can be used for other staff so they can be up to date on the technologies and activities.
- Public Education: Can there be regional ads instead of each country having separate ads? Is there a way to have one waste communication programme across the islands? If messages are the same, there can be cost saving.

#### 2.1.3 Mr. Phillippe Comlan: A community of agglomeration of the south Martinique space.

Mr. Comlan's presentation encompassed the work that has been done in the south Martinique space dealing with waste. Mr. Comlan explained that a lot of effort is to be put into building a plant to treat territory waste, more so focussed on organic matter. Currently, there is an incinerator for the residual waste and there are plants which separate and convert plastics.

Focussing on the south of Martinique, he explained that there are 6 collected flows: recyclable household garbage, dry recyclables, glass, fermentable fraction garbage, bulky and green waste. There are also 6 special dumps for large waste. The average cost per person is 193 euro and about 1400 euro per tonne. He stated that 60 -70 % of this is covered by a household waste tax the rest subsidised by the general budget. Additionally, the waste is colour coded as shown in figure 4.



Flux	Couleur du bac	Déchets collectés	Acheminement
1	Yellow	Metal: Cans, beverage cans, aluminum trays, plastic aerosols: Plastic bottles, cans, plastic bottles Cardboard: Boxes, packaging, overpacks Paper: newspapers, magazines (Bulk, bag-free and empty)	Centre de recyclage (Ducos)
2	Brown	All organic waste: soiled pizza cartons, wilted flowers, peels, table scraps, paper towels, coffee filters, newspapers and paper. (Bulk and bagless)	Organic Valuation Centre (Robert)
3	Collection whitout bin	Green waste: clippings, leaves, flowers, shrubs, branches packaged in bundles up to 1m3 per household	Landfill (Robert)
4	Collection whitout bin	Bulky up to 1m3 per household	
5	Grey	All residual waste	



Figure 4: Colour coded waste collection in South Martinique

He stated that there is a recycling centre based in Ducos that separates the different waste types. The organic matter goes to an organic plant to make gas and generate electricity. He explained that this project was a huge investment taking 3 years for the plant to be completed. With regards to collection without bins, the green waste is separated from the bulky waste. Additionally, every household is mandated to have 3 kinds of bins. In total, 90% of plastics are recycled in Martinique and the residual waste mostly incinerated.

Mr. Comlan went on further to explain that there are also different types of bins, placed all around the city in which persons can place their plastic and glass. In the south of Martinique there are about 500 such bins. These bins are collected with trucks. Thus far, about 25% of what is expected especially for organic matter waste management has been achieved. The weak areas that are to be worked on according to Mr. Comlan are the frequency of collection and collection days for large producers such as hotels and restaurants. On the other hand, the south Martinique waste management system development is contributing significantly to the growth of a circular economy. He indicated that if garbage isn't correctly separated, there is the possibility of the introduction of a fine to try and prevent this from occurring. Mr. Comlan spoke specifically to the example of glass collection in Martinique. He explained that previously glass was collected and shipped to Europe to be treated, however, local engineers developed a method of mixing sand with glass and gravel to produce concrete and currently used in the building industry.

The further key improvements for the south space of Martinique according to Mr. Comlan are:

- 1) Service performance
- 2) Reduction of residual waste
- 3) Increase the value of plastic and organic matter
- 4) Continued development of a circular economy
- 5) Improve the quality of information to users

## 2.2 OPEN FLOOR FEEDBACK.

1. The amount of waste generated by tourism is not accounted for separately by Caribbean countries. As a result, the per capita waste produced may be high, when in reality the contribution by the local populous may be much lower. Any assumptions made about the tourist waste generation without actual data may result in inaccurate values reported. In St. Maarten, for example, there are 145,000 inhabitants but over 2 million tourists per year. There needs to be in place a tourist waste generation data collection mechanism.
2. PAHO clarified the issue of misinformation regarding the publication of waste data for Trinidad in a World Bank report referred to in Mr. Roach's presentation. PAHO indicated that they wrote to the WB

informing them that the actual figure is around 1 kg. This prompted the suggestion and support for the development of a regional reporting and data collection system for waste as well as a Data collection monitoring system after this HLF.

### 3 PANEL DISCUSSION ON EMERGING WASTE MANAGEMENT ISSUES - PLASTIC WASTE: ASSESSING RESULTS (BANS; MICRO-PLASTICS ETC.) MODERATOR: MS. JEWEL BATCHASINGH

#### 3.1 MR. CRAIG KULLMAN: THE WORLD BANK

Mr. Kullman spoke on behalf of his colleague Sylvia Michele Diez who led the report on marine pollution in the Caribbean. Mr. Kullman stated that marine pollution is a complex problem and that one characteristic of a complex problem is that it usually involves multiple entities at different levels of influence. According to Mr. Kullman, the development literature on best practices is only part of the solution. He indicated that the marine pollution report for the Caribbean by the World Bank tries to quantify and characterize the outcome problems of marine pollution and provide some insights for policy and decision-makers specifically in the context of SIDS.

He continued that the ocean economy in the Caribbean region is very diverse. There are various goods and services such as marine-based tourism, fisheries and others that are present. This ocean economy is made possible by the region's rich stock of natural capital: fisheries, minerals and coral reefs; all from which the region derives its economic growth. He then introduced the concept of the *Blue Economy*; using that natural capital in a way that's sustained and integrated to support economic growth. He argued that marine pollution in the region is therefore threatening the potential of the blue economy and presented statistical information to that effect. He stated that marine pollution is 80% land-based and largely comes from solid waste through direct and indirect discharge of wastewater in the region. Additionally, inadequate institutional efficiencies result in 85% of untreated wastewater generated contaminating coastal areas and leading to health implications e.g. diarrhoea, dysentery, cholera. Mr. Kullman explained that in terms of progression, the World Bank report that includes all the previous information, tries to resolve complex issues such as solid waste management by proposing a framework and 12-point action plan involving partnerships and a call for new analytics for attention to be drawn to the issues at a country level. He indicated that analytics can also be used to drive policy reforms in the region. Mr. Kullman gave an example of where data use was powerful with sanitation reformation in Indonesia and India. He explained that in 2008, the WB was trying to globally raise awareness around sanitation in both urban and rural areas. An initiative was begun entitled the 'economics of sanitation', quantifying the impact of inadequate sanitation in terms of GDP lost on a per annum basis. This, he stated, got a lot of attention from officials in the Ministries of Finance as the lack of attention and its effect was placed in monetary terms. This resulted in greater media coverage and fuelled dialogue in generating a programme across the country. The lesson from this, according to Mr. Kullman, is that the power of the data at the local level influences local actors.

*Mr. Kullman closed by promoting a new multi-donor trust fund that the WB is housing which was launched in 2018 called ProBlue.* He indicated that this can potentially fund the Caribbean countries with the CWMAP action plan implementation. He listed the 4 pillars that ProBlue covers: Fisheries and Aquaculture, Marine Pollution, Oceanic Sectors and Seascape Management. (<https://www.worldbank.org/en/programs/problue>)

### 3.2 OPEN FLOOR FEEDBACK

1. In order to better quantify waste in the Caribbean region, monitoring technologies need to be put in place. It was suggested that multivariate analysis be done to ascertain contributions by certain sectors to arrive at the priority areas. However, in lieu of funding for monitoring systems, one-off surveys may suffice until finances are secured.
2. It was mentioned that there seems to be competition for funds with the overarching issue of climate change. It was clarified that this is not the case as the climate change and waste nexus is real so there is no competition for resources and there are discrete funds available for each. It was also indicated that climate change underpins the World Bank's ProBlue fund.

### 3.3 MS. LUMEN CAYETANO: BELIZE SOLID WASTE MANAGEMENT AUTHORITY (BSWMA)

Ms. Cayetano presented work by the Department of the Environment of the BSWMA; the lead coordinating agency with respect to pollution, especially marine pollution. The focus of the presentation was the Marine Litter Action Plan for Belize.

Ms. Cayetano explained that the plan was developed in 3 stages from May to August 2019. These stages were as follows: research and development, consultation and formulation, review and adoption. In September 2019 there were high level dialogues on Marine Litter Waste Management in the wider Caribbean where the plan was presented along with other research concerning micro-plastics and marine litter. Since waste is cross-cutting, she indicated that there was widespread stakeholder involvement and engagement which was central to the action plans to be implemented. This support came from academia, private, and government, with a focus on marine and land-based pollution and prevention.

The overarching challenges to the project were:

- Uncoordinated and unsustained outreach across all sectors as well as lack of communication
- Lack of data for the development of public and private sector initiatives
- Limited scientific monitoring and research to inform evidence-based decision-making
- Lack of clarity of waste management & disposal structure and financial costs resulting in unsustainable systems and management. In Belize, she noted that cost recovery is difficult.
- Limited and ad hoc private sector and NGO engagement to address waste management. With the impact of waste on the environment many NGO's are coming on board, especially those that are marine-protected based.
- Limited financial institutional capacity

The Strategic Recommendations according to Ms. Cayetano were:

- To strengthen institutional capacity to conduct scientific monitoring programmes in Belize and contribute to regional datasets, therefore supporting each other with information regionally and integrating the best practices across the board.
- To increase and strengthen data collection and development of policies and strategic actions to address marine litter
- To develop and implement a coordinated and sustained long-term outreach campaign across multiple sectors and audiences. This is mainly to address behavioural change and to foster a greater understanding of the impact of marine litter, not only on the tourism product, but also the impact on fisheries.
- Further strategic recommended actions:
  - To develop Marine Pollution Prevention Legislation.

- To develop and implement a waste reduction policy and recycling sector policy. This is being done in Belize, but at a very informal level.
- To work towards building the capacity of Belize through the department of the environment, with a focus on creating and demonstrating ideas using science to address marine litter.

The Way forward: Ms. Cayetano stated that the vision is for Belize to lead the way in tackling marine litter and its sources. The coordination is being done through the Ministry of Agriculture, Fisheries, Forestry, Environment, Sustainable Development and Immigration with a multi-sectoral approach. Additionally, scientific monitoring is being looked at. The main facets of the strategic breakdown approach are: waste removal, outreach and education, sea-based sources, land-based sources and marine sciences. Stakeholders that can contribute meaningfully to each of these are brought on board. *The Marine Litter Action Plan is to be shared with the rest of countries.*

### 3.4 OPEN FLOOR FEEDBACK

1. The contribution of the cruise ship industry to waste should be taken into consideration.
2. Communication strategy: The public sees waste management as a government issue. This perspective needs to change if sustained progress is to be made. This can only happen through proper education and communication programmes. It is not that persons are not aware, but public education campaigns and communication programmes need more funding and should be targeted to specific audiences.
3. Not enough resources are being allocated to waste management by governments. This might be due to a lack of financial information on priority requirements, so government officials are unable to understand why increased funds are needed.

### 3.5 MR. EMMANUEL DU BOIS: NATIONAL SOLID WASTE MANAGEMENT AUTHORITY, ANTIGUA & BARBUDA.

Mr. Du Bois presented a summary of the success of the plastic ban in Antigua and Barbuda. Antigua and Barbuda were the first islands in the region to completely ban shopping bags and styrofoam products. This campaign began in 2016.

According to Mr. Du Bois, there were several stages in the process as follows:

1. A ban on the importation of plastic bags into Antigua (effective January 1<sup>st</sup>, 2016)
2. Ensuring that the ban was implemented (June 31<sup>st</sup>)
3. Small supermarkets and businesses were targeted, and stock removed (July and December 2017)
4. Food utensils were focused on, especially the styrofoam based products (2018)
5. A complete ban on all styrofoam and plastic use by businesses (July 2018-January 2019)
6. Repealed the litter act and added to the act that plastics and styrofoam be considered to be litter with high fines implemented. (2019)

Mr. Du Bois stated that there were some exemptions to this ban and mainly included the airlines and cruise ships (exemption allowed until the Ministry and Environmental Department put systems in place to manage them). The main successes were the setup of a monitoring and control unit within the ministry for the confiscation of any bags or plastics discovered at businesses. Post-introduction of the ban, Mr. Du Bois stated that there has been a significant reduction in the volume of plastics coming to landfills as well as littering. Less flooding has also been evident. In 2018, 6550 kg of plastics were condemned from ports of entry. Litter wardens installed at the ports work with the customs department to stop the imported plastics at the entry point.

Mr. Du Bois identified some of the effective strategies of the ban as follows:

- 1) Public awareness: there was a campaign budget to educate the public. All media sources were fully involved and cooperative
- 2) Online polls were used to get feedback from the public on how they felt about the ban
- 3) Use was made of important persons in the media to send out the messages
- 4) There was strong and close working Public-Private Partnership
- 5) A technical committee was established with all major stakeholders prior to and during the process
- 6) Every aspect was documented with clear definitions of committee goals and responsibilities
- 7) There was the formation of an inter-governmental committee
- 8) There was the finalization of legally binding documents

*Mr. Du Bois further expounded on regional level actions that can be taken including:*

1. *Proposal for regional standardization of compostable and biodegradable packaging to set to the bar for acceptable and unacceptable goals to remove inferior packaging from the market.*
2. *Regional lessons-learned documents to be shared among countries (Mr. Du Bois promised that the lessons learned in Antigua will be shared with the other islands)*
3. *Strengthen local labs or have a regional testing facility so that introductory products can be proven to be biodegradable*
4. *Educational programmes targeted for the entire region, for example, Coca Cola and KFC standardized ads.*
5. *Sensitization of both visitors and nationals to the shift in sustainable products adopted and used*
6. *A dedicated monitoring team established.*

Litter Control and Prevention Act of Antigua and Barbuda: <http://laws.gov.ag/wp-content/uploads/2019/05/No.-3-of-2019-LITTER-CONTROL-AND-PREVENTION-ACT-2019-No.-3-of-2019.pdf>

### 3.6 OPEN FLOOR FEEDBACK

1. The ban in Antigua was a complete ban; meaning importation, sale and use of styrofoam and/or plastics.
2. The biodegradable alternatives that were identified and approved are: sugarcane bagasse, potato starch, bamboo and cardboard. There is also importation of compostable products from St. Lucia where it is manufactured. There are also duty-free concessions on acceptable products.
3. In order to deal with the biodegradable products, Antigua is looking at setting up composting sites islandwide to encourage the use of the product and reduction in the quantity going to landfills.
4. The Customs and Trade Department at the CARICOM secretariat has been tasked with doing more in-depth research and feasibility of a regional approach to plastic bans.
5. Removal of import duties by the Antiguan government on biodegradable products resulted in these products being affordable.
6. Certain waste types are still accepted from cruise ships by Antigua and Barbuda due to previously signed agreements



## 4 PANEL DISCUSSION ON EMERGING MANAGEMENT ISSUES - SARGASSUM: COLLECTION, RECYCLING AND REUSE. MODERATOR: DR. SHELLY-ANN COX

### 4.1 DR. SHELLY-ANN COX : SARGASSUM COLLECTION, RECYCLING & REUSE

Dr. Cox started the session presenting work that she and others at the Centre for Resource Management and Environmental Studies (CERMES) have been working on in relation to sargassum. She mentioned that since 2011, there have been unprecedented quantities of sargassum washing up on the shores of Caribbean countries. It was also noticed that national and international media reports have painted sargassum with negative connotations related primarily to the smell of the decomposing sargassum. This, according to Dr. Cox has resulted in decreased tourism arrivals in some islands. The implications of sargassum needs to be studied said Dr. Cox, since this is to become a new normal for the region.

Dr. Cox explained that the Great Atlantic Sargassum Belt (8850 km) is the name given to the areas from West Africa to Gulf of Mexico. She went on to show satellite imagery which helped to demarcate this area and quantify amounts. She stated that the data showed more than 20 million metric tonnes of biomass (photo taken after June & July) all with the potential of washing up on shores of Caribbean countries.

She mentioned that the big question surrounds how the issue is to be handled. Dr. Cox explained that with this in mind, the Gulf Caribbean Fisheries Institute (GCFI) have created guidelines on how to treat with sargassum so that damage isn't done to Caribbean beaches.

Dr. Cox listed the current and possible uses of sargassum as follows:

- In brick building in Mexico.
- Shoe soles made from sargassum and plastics.
- St. Lucia: biotonic
- Bioplastics using sargassum alginate.
- Artisanal beauty products: soaps and lipsticks have been experimented with.
- Sargassum has high arsenate levels which is a concern and placed some hesitancy on the private sector to use it in animal feed and pharmaceuticals. There is need for more exploratory work with this usage.
- Sargassum might not be the best to use for biofuel based on research done thus far. It has been used for clothing and paper products. What is needed are the uses that would utilize the most volume.

*What are the challenges to sargassum harvest and usage?*

- There are existing management plans in the region for sargassum. However, going forward there needs to be more thought on harvest permits, storage and distribution areas.
- Better regulation needs to be put in place so that persons do not develop informal systems that are difficult to monitor.
- Unpredictability in distribution and supply: There is work being done on developing a forecasting predicting scheme. Such as which beach might be affected and by how much. There is still a lack of understanding of how fast sargassum actually grows or dies.
- Variable and undefined composition
- Salt content and pollutants
- Harvesting and equipment
- Cleaning
- Transport and storage
- Access to Research and Development Funding

Dr. Cox stated that CERMES has developed a prototype of a bulletin for sargassum. It is currently work-in-progress entitled *Sargassum sub-regional outlook bulletin*. There are hopes of a full release in time. Dr. Cox suggested that persons present can give feedback on this prototype. Additionally, there is a guide on the uses of sargassum being created. Other sargassum related events are the sargassum expo in Guadeloupe end of year 2019 that would be a great hub for sharing information, so efforts are not duplicated. Sargassum management plans are being developed under the CC4FISH project with St. Kitts and Nevis which is one of the pilot countries. There are other communication products being worked on such as videos and guidance booklets that can be used to give guidance to persons. There have also been 2 sargassum symposiums hosted at UWI, Barbados with more to come. Additionally, there are two projects that are coming onstream: SargAdapt (adaptation plans) and SargTrac (forecasting information in mobile app) similar to the fisheries early warning app.

#### 4.2 MR. PHILIPPE COMLAN: SARGASSO ALGAE – A HEALTH PHENOMENON AFFECTING THE CARIBBEAN AREA

Mr. Comlan's presentation was focussed on sharing the experience that Martinique has had with the influx of sargassum. He explained that the government of Martinique tracked the rate of sargassum movement using satellite photography to identify the arrival time of sargassum after which a collection mechanism was set up. He mentioned that the main intention of the government was to keep out the sargassum 48 hours from the onset, which unfortunately was not effective. As a result, there was a great impact on the population especially in the south of Martinique. About 5 municipalities were affected. He further mentioned that the main form of help to the municipalities are early warning devices, workshops, insertion buildings and setting up mechanized collection services. Additionally, the budget given to the municipalities was \$1.3 million.

South Martinique also tried different equipment for sargassum collection such as the rake, however Mr. Comlan stated that these methods failed at keeping out the sargassum and this led to the closure of some businesses such as Airbnb's. Following from this failure, governments added funding to buy more trucks and further encourage the citizenry to participate in the collection.

The various collection techniques used on the beaches in south Martinique according to Mr. Comlan are:

1. The rake
2. Towed seaweed rake
3. Self-driving vehicle
4. Green brigades
5. Collection Barge (Tested in Punta Cana)

Mr. Comlan stated that since 2016, more than €5 million have been committed to finance collection and valuation trials for sargassum. The following is some of the work that is on-going in the south of Martinique in tackling the sargassum issue:

- **Composting**
  - Holdex platform accepts seaweed (100t/sem) free of charge.
  - Extension of the platform planned to accommodate the treatment of 30,000t fresh sargassum (estimated cost: €4.95 million)
  - Experimentation with two other platforms: Terra Viva (Ducos) and Organic Valuation Center (Robert)
  - **Energy** recovery
  - Investigate if sargassum is pyrolyzed at high temperature with co-products



- A study of the methanogen potential of sargassum shows a tendency to degrade methanization performance
- **Agro-food** valorization
- Questioned in light of arsenic
- Valorization **in bioplastics**
- Study underway in Brittany for a project to use sargassum as a natural load in the manufacture of plastic
- Polderization project: make an extension of the coast by keeping the sargassum underwater. Because the cost of keeping the sargassum out of the water is expensive.

#### 4.3 MR. KENNETH HOOTEN

Mr. Hooten said that what is being done is the development of a concrete plan to act on the issues. The HLF-2 outcomes have inspired Mr. Hooten and his team. He talked about the progress from HLF-2 to HLF-3.

There is a solution that Mr. Hooten and his team have come up with and had a few pilot projects within the Caribbean Draft Action Plan 2019. He called for regional co-operation within the scope of the plan. He noted that Curacao was surprised by the sargassum in 2019. He also highlighted like Dr. Cox did, about the need for proper equipment and methods in beach clean-up. One of the possible solutions that was tried according to Mr. Hooten was the placement of a buoy that would prevent the sargassum from coming to the shores which however was unsuccessful. He also stressed that the best mode of storage of sargassum is under the sea.

*Mr. Hooten volunteered his team as a source of information about the possible machinery that are effective for cleaning up the sargassum deposits, for the interest of everyone present.*

#### 4.4 MR. EDWARD BACHUS

Mr. Bachus spoke about the different ways in which sargassum can be utilized. He mentioned that there are various methods of storage including underwater as well as in tanks under anaerobic conditions.

The various processes that sargassum can be used for according to Mr. Bachus are:

1. To make biogas.
2. In agriculture, however the heavy metals would have to be taken out.
3. It can be fermented to get alcohol, which can further be distilled and mixed with gasoline
4. Bio-cracking.

#### 4.5 DR. ELLIK ADLER – MAOF COMPANY, ISRAEL

Dr. Adler's presentation centered on the opportunities surrounding turning sargassum into energy. He gave a bit of background on how his company became involved in the sargassum issue. He stated that the MOAF aims to bring an integrated approach to dealing with sargassum and evidently expand opportunities.

Mr. Jonathon Harran was then invited to describe the possibilities of using sargassum to generate electricity. He stated that through laboratory experiment it was found that sargassum is not suitable for thermal treatment and incineration because of its high Sulphur content and it has a low calorific value. The next technology used according to Mr. Harran, was testing sargassum's feasibility for biogas using anaerobic digestion. He stated that there are anaerobic digestion plants worldwide, indicating that it is a proven technology, it is financially feasible, has a low carbon footprint, and in addition most of the countries of the world have renewable energy incentives.

The challenges according to Mr. Harran are:

- 1) The Low calorific value- which means that sargassum must be co-digested to be of greater energy value.
- 2) The seasonality of the feedstock. Sargassum likes warm or hot temperatures but the bagasse plant doesn't work well with this temperature variability.
- 3) The need for a dynamic solution in case the plant requires modification due to changing quantities of sargassum.

Mr. Harran then gave a case study: Case in point: Punta Cana Pilot Project, the Dominican Republic. He explained that the project in the Dominican Republic can be replicated in other islands and gave the following main points coming out of the study:

- The main point of the study was looking at a Water-Energy-Food Nexus approach, specifically for a waste dumping site in Punta Cana, with the suggestion of diverting all of the wastewater and sargassum to an anaerobic digestion facility to create green electricity and connect with the local utility. The other positive to this would mean the upgrade of the dumping site to a sanitary landfill would stop leachate from contaminating the groundwater.
- The use of sargassum for commercial projects and using about 50% sargassum and 50% organic waste to produce: 1) Electricity (1MW equivalent to 1000 households in the Dominican Republic) 2) Compost that can be given to farmers and/or sell and create revenue.
- The financial returns are: Capex: 6-8 M €/MW, Investment: 30% equity, Project life cycle: 25 years, ROI 3-4 years, IRR = 31%.



Figure 5: Countries with the highest market potential for generating electricity from sargassum replicating the Punta Cana setup

#### 4.6 OPEN FLOOR FEEDBACK

1. The use of anaerobic digestion would result in the generation of residual waste. This is because most of the sargassum that goes through the anaerobic digestion process comes out the other end with only 3-5% is turned into biogas. The residual waste can be utilized either as liquid fertilizer or as compost. Even the heat generated can be used in some way.
2. The high Sulphur content in the sargassum makes it difficult to burn on its own, however, there is the possibility of mixing to increase the calorific content with other materials.
3. There is currently an anaerobic plant in Martinique, however, further experimentation is required with regards to sargassum.

4. One suggestion of the best way to predict and prepare for the arrival of sargassum is to utilize the meteorological services to track the location of sargassum and removal out in the open sea with the use of tugboats.
5. There are organisms (e.g. turtle eggs and fishes) that live in the sargassum and therefore care must be taken when harvesting.

## 5 PANEL DISCUSSION ON WASTE MANAGEMENT AND THE TOURISM SECTOR. MODERATOR MR. MARLON DANIELS

### 5.1 MR. VINCENT SWEENEY

Mr. Sweeney spoke on a regional component of a global project that the UNEP is executing in several countries including the Dominican Republic and St. Lucia, which is focused on the tourism sector and under the umbrella of the SDG's. He explained that the footprint from the tourism sector is much greater compared to the average person living on the islands. However, he stated that the return rate of tourists to the region is affected by marine pollution such as the issue of sargassum spoken about previously and others. Therefore, once aesthetics in the region are changed, according to Mr. Sweeney, the perception of the tourists is altered.

He highlighted some of the issues as follows:

- Plastic waste as mentioned is highly generated by the tourist sector in the region. Mr. Sweeney noted that it is anticipated that plastic manufacturing will increase worldwide which will directly impact the marine environment, the marine ecosystem and carbon footprints.
- Contamination of the food chain impacts negatively on the sector.

However, Mr. Sweeney mentioned that in response to these concerns several action plans and roadmaps surrounding transformation of the tourism value chain in the SIDS have been launched. Mr. Sweeney mentioned that out of the work done so far in St. Lucia, there was a lot of information sharing and actions taken by the hotels such as the use of bioplastics and refillable water bottles. The result is that 88% of the hotels in St. Lucia have removed the use of single use plastics in hotels.

Mr. Sweeney ended by stating that contrary to popular belief, all hotels have access to biodegradable product substitutes.

### 5.2 MS. DEONNE SMITH ANDERSON

Ms. Smith-Anderson highlighted some of the communication initiatives that UNEP has been engaged in.

She began by showcasing the Clean Seas Project, a global UN Environment initiative launched in 2017 which was themed as a pledge to improve plastic management by 2022. She showed a Valentine's Day video that was launched under this project ( <https://www.youtube.com/watch?v=idvDPBHq6WE>). She indicated that this was an internationally launched video which hopes to entice tourists to change their behaviour toward plastics whilst visiting various islands. Eight Caribbean countries have already signed on, according to Ms. Smith, to the project and pledged to improve their plastic management.

She further explained that the project Towards Clean Seas and Sustainable Tourism in the Caribbean has the same objective supporting the Clean Seas project and the objective of reducing the of single-use plastics in the Caribbean by implementing sustainable procurement practices and eco-innovative solutions. The Target audiences are hoteliers and procurement managers, staff and tourists.

Ms. Smith-Anderson listed the messages under the project which will help transform the work of hoteliers and procurement managers:

- 1) Reduce, reuse, recycle
- 2) Only work hand-in-hand with suppliers with sustainable options
- 3) Strengthen their alliance
- 4) Buy in bulk: instead of single packaging, use dispensers
- 5) Involve all the hotel staff
- 6) Invite guests to be part of the change
- 7) Support global movements: Other UNEP initiatives

For the tourists, Ms. Smith-Anderson explained that the actions to be taken are two-fold as follows:

- When visiting, tourists refuse what they can't reuse, opt for alternatives and they become the change agents.
- When tourists get back home, they lead by example and they plan for their next trip by packing smarter.

### **5.3 MR. JUSTIN SEALY: WASTE MANAGEMENT IN THE TOURISM SECTOR**

Mr. Sealy explained the methodology used to analyze the situation in the aforementioned UNEP project. This encompassed a waste characterization study trying to understand the types of plastics used in the sector and what they are used for. Additionally, the cost of the items was investigated so that a cost comparison could be done with the alternatives. He explained that hoteliers were introduced to the effect of poor management regarding plastic use and the degradation of the environment which evidently affects the tourist influx to their hotels directly. Mr. Sealy stated, that in St. Lucia it was found that the hotels are representing 7.5-8.1 % of the waste currently going to the landfills. Mr. Sealy went on further to detail the waste composition at the hotels. He indicated that the St. Lucia Hospitality and Tourism Association is part of this programme and rallying for providing glass water bottles to the hotels.

### **5.4 OPEN FLOOR FEEDBACK**

1. There are many events in the Caribbean region, for example, Carnival and sports, where more consideration on plastics need to be considered. Guidelines on greening events can be obtained from international events such as IPL Cricket and the Olympics.
2. There were concerns that single-use plastic bans would negatively affect the poorer class of society. However, this was not found to be the case in Jamaica where the ban has been successful. On the other hand, the cost of inaction and clean-up can divert finances away from investing in poverty alleviation. Therefore, a multidimensional analysis is required.
3. The Cruise Ship Industry in the region needs to be engaged with so that they become responsible for their waste discharge. In St. Lucia, however, the waste contribution to the landfill from cruise ships was found to be less than 1% per annum.
4. If bottled water is to be removed from the hotels, then tap water needs to be up to standard. This is not necessarily the case in many Caribbean countries.
5. The St. Lucia Hospitality and Tourism Association (SLHTA) have produced locally relevant handbook of some of the approaches being taken in St. Lucia that other islands can adopt.
6. The region seems to be well into action already with waste management.
7. A lot of the good practice in the tourist industry that have been highlighted needs to be extended to the hospitality industry.

## 6 MR. JORDI PON AND MS. JEWEL BATCHASINGH: OPPORTUNITIES FOR TRAINING & DEVELOPMENT OF WASTE PRACTITIONERS

### 6.1 MR. JORDI PON: UN ENVIRONMENTAL PROGRAMME

Mr. Pon stated that traditional approaches to training and capacity building are no longer effective and that there is a need for new methods. He explained that within this framework and in relation to the role of and collaboration with the universities and academic circles, the UNEP initiated an academic consortium in 2016 on waste management. He stated that the consortium comprises 8 universities from the LAC (of which UTECH, Jamaica and the University of the West Indies (UWI) are included). The current objectives of the initiative according to Mr. Pon are:

- To develop an academic programme on sustainable waste management
- To promote the adoption of the programme to enhance the knowledge and integrated waste management and solutions tailored to the region, to enhanced publications and knowledge exchange, facilitate mobility of professors and students and increase the capacity of current waste management professionals.

Mr. Pon listed some of the outcomes of the initiative as follows:

1. There has been the development of a postgraduate academic program that any university can adopt in their teaching. It is comprised of 4 modules and is publicly available in English and Spanish.
2. Dissemination material has also been published about the initiative as well as the development of a guide on the modalities that academic and training centres can use for their master's programme, specialization or short course. There has been pilot testing on-going in different countries, e.g. Venezuela, Chile and Panama with over 150 students and public forums on waste management. The programme modules are as follows:
  - 1) Fundamentals of waste management
  - 2) Waste management and handling
  - 3) Technologies
  - 4) Policy, governance, finance and legislation

Mr Pon stated that this training activity has already been adopted in Chile and Panama where there is financing available through grants to 10 participants including CARICOM countries, to go to Chile for training.

*There is an upcoming training programme that will be tested at UWI, St. Augustine Campus in January 2020. It will be one-week training at the Department of Civil Engineering. There will be about 30 participants (8-10 sponsored persons). The focus of this training would be on the sustainability of current waste management systems.*

Mr. Pon indicated that the UNEP would like feedback from those present on what specific training and professional development needs are required and how these needs can be addressed. He expressed that this feedback can be included in the UNEP's work plan in the future.

### 6.2 MS. JEWEL BATCHASINGH

Ms. Batchasingh explained the role and function of the Basel Convention Regional Centre (BCRC), in waste and chemicals management. She stated that the BCRC serves 14 countries in the Caribbean and indicated that one of the core functions of the BCRC is training and technology transfer. She gave an example of a project

on persistent organic pollutants (POPs), GEF funded and valued at USD\$8 million. This project, she stated, is being executed in 8 of the countries served by the BCRC in the region.

Ms. Batchasingh explained that the BCRC has already completed an inventory of the POPs that are within a particular country as part of their mandate under the Stockholm convention. Additionally, this component, according to Ms. Batchasingh, had a well-designed communication strategy, targeting key audiences.

She explained that under the communication component, there were two specific areas of training:

- 1) The needs assessment for the capability to manage POPs.
- 2) The regional communication strategy on POPs awareness.

Another new component mentioned by Ms. Batchasingh is the source separation scheme. The main deliverables of this component are trained landfill operators and hazardous waste management for 5 countries looking at source separation programmes, hazardous waste facilities assessment, basic engineering design and site layout, operations and maintenance manuals. The scheme, according to Ms. Batchasingh, can be adapted by another country. She mentioned that one project coming out of this was the Guanapo landfill project in Trinidad and Tobago for which a remediation plan was developed. Remediation plans, she explained, are specific to countries but can also be shared and adapted. The last project mentioned is the polychlorinated biphenyls (PCBs) or transformer oils issue being treated with in the Caribbean. Persons on the ground were engaged at the country level to build capacity and knowledge transfer with this waste product. Finally, Ms. Batchasingh highlighted the legal component of the project which includes an Integrated Chemicals Management Act (draft), that other countries can also utilize.

### **6.3 OPEN FLOOR FEEDBACK**

1. The lack of trained persons in waste management who work in the sector should be noted. Additionally, many changes are made to staff preventing them from being up-to-date on the affairs of the waste management body and/or without the suitable background. This is where the UNEP training and capacity building through academic programmes (and otherwise) is integral. Additionally, funding is required for training and sponsorship of persons.
2. The UNEP training programme should be guided by the needs of the industry. This may require a needs and resource capacity assessment.
3. Suggestion that a Gap Analysis template be circulated to countries to give feedback on their needs.



## DAY 2

### 7 SUMMARY OF DAY 1: MR. RONALD ROACH

The summary given by Mr. Roach can be found in Appendix C.

### 8 PANEL DISCUSSION ON WASTE MANAGEMENT: THE INTERNATIONAL AGENDA AND IMPLICATIONS FOR THE CARIBBEAN. MODERATOR: MR. ARTHUR EIJS PANELISTS: MR. JORDI PON, MR. CORNELIUS ISAAC, MS. DONNA SUE SPENCER

#### 8.1 OUTCOMES OF THE UNITED NATIONS ENVIRONMENT ASSEMBLY (MR. JORDI PON)

Mr. Pon started his presentation by informing everyone on the considerations that the waste management issue has been given by the international community. He noted that it has been added to the agendas of international bodies as far back as the Rio conference in 1992. He noted that in the last decade internationally, there are examples such as the 2012 Rio +20 UN Conference, where specific statements were made on the 3 R's (reduce, reuse and recycle). He indicated that it was from here that the SAMOA pathway was initiated as well as the development of the 2030 agenda with goals and targets related to waste management. He also mentioned that recently there was the convening of the UN Conference on the Environment which mandates the work of the UN at this conference, Mr. Pon stated that there were several resolutions adopted which called for action on waste management. The call for waste management, according to Mr. Pon is more so a call for a more holistic circular economy approach (e-waste, plastic waste etc.) which requires support from many stakeholders.

At the regional level, Mr. Pon stated that at the 19<sup>th</sup> forum of the Ministers of the Environment (2014) waste management issues started to be more clearly addressed. In 2016, he stated, there was recognition of this progress and a call to address national strategies on waste management and working together to address best practices in Latin America and the Caribbean.

Looking specifically at the Caribbean region, Mr. Pon indicated that there is a lot of support from the IDB, PAHO, CWWA and other development partners. He highlighted the UNEP's support of conferences since 2016/2017 such as the Caribbean Waste Management Conference in Jamaica and forums such as the CWWA's HLF-Waste.

He also mentioned that the UN Environment Assembly (UNEA) which adopted, at the UNEA-4, a call for action adoption and implementation of policies related to the sound management of waste generation in line with the 2030 agenda.

One of the more important components highlighted in this call according to Mr. Pon, is the commitment to reduce single use plastics; manufacturing and use by 2030. This is one area Mr. Pon agrees the Caribbean seems to be ahead in some of the resolutions taken at the UNEA-4 meeting. Highlighted by Mr. Pon, they are:

- ✓ 4/2 Promoting sustainable practices and innovative solutions for curbing food loss and waste
- ✓ 4/6 Marine Plastic Litter and Microplastics
- ✓ 4/7 Environmentally Sound Management of Waste
- ✓ 4/8 Sound Management of Chemicals and Waste
- ✓ 4/9 Addressing Single-use Plastic Products Pollution
- ✓ 4/21 Implementation Plan "Towards a Pollution-free Planet"



Mr. Pon further explained that one of the responses to the previous UNEA, was an implementation plan with a declaration on a pollution free planet which was coined and adopted in 2019. Mr. Pon further mentioned that in relation to UNEA there have been recent outcomes of the last forum of Ministers of the Environment for Latin America and the Caribbean (October 2018, Buenos Aires Argentina) where 4 decisions were made related to chemical waste and marine pollution. There was also an adoption of a Regional Action Plan on Chemicals and Waste with 33 action points. There is also a call to strengthen Regional Corporation with regards to marine litter and to promote a voluntary coalition of government and other organizations for the progressive closure of dumpsites. In response to one of the key outcomes and findings, there was the suggestion of the development of a road map to close dumpsites over time. Mr. Pon stated that this coalition has been initiated and already joined by 12 governments of the region and 8 organizations. He mentioned that the spirit of the coalition is to generate new opportunities for the countries to learn from each other. As part of this, there is a draft work plan 2019-2020 that has been developed.

## 8.2 MR. CORNELIUS ISAAC: WASTE MANAGEMENT WORK OF THE ORGANIZATION OF EASTERN CARIBBEAN STATES (OECS)

Mr. Isaac began his presentation by giving an overview of the OECS and its governance frameworks: OECS Economic Union-The Revised Treaty of Basseterre, St George's Declaration on Sustainable Principles (SGD) and the OECS Development Strategy (ODS) (2018-2027). Mr. Isaac stated that the relevant part of the development strategy is the environmental section (ODS-e). He further mentioned that the OECS Council of Ministers of Environmental Sustainability (COMES) provides guidance and approves the work plan of the commission. Mr. Isaac stated that the most important meeting with regards to the waste sector was the meeting in Montserrat 2018. At this meeting, Mr. Isaac stated that ministers met and did a very comprehensive appraisal of the waste management situation in the OECS and encouraged member states to take action as proposed by the UNEP and additionally endorsed efforts to mobilize resources for action. They suggested that member states undertake an assessment to determine requirements to address new and emerging challenges for waste management as well as promote legislation and other measures regarding marine plastic pollution.

Mr. Isaac stated that the member states, following the directive of the ministers, and in the follow-up meeting in Martinique (May 2019) noted the success of Antigua and highlighted the journey that Antigua went through for member states to note and possibly adopt.

Mr. Isaac then went through some of the waste management initiatives that the OECS has been undertaking:

### A. Previous initiatives:

- 1) **Solid and Ship generated waste management project (1996-2003).** The objective of this project was:

*To reduce public health risks and protect the environmental integrity of the islands and their coastal and marine systems by improving waste management facilities.*

Components:

- a) Development of new sanitary landfills and closures of dump sites;
- b) Provision of material and equipment to enhance solid waste storage, collection, treatment and disposal;
- c) Strengthening of management capabilities;
- d) Handling of ship generated waste;
- e) Development of relevant policy and institutional framework for solid waste management;
- f) Investigation of regional markets for recyclable materials;

g) Preparation of sewage master plans.

2) **Streamline Green Waste through Composting for Improved Sustainable Soil Management in Anguilla (2016-2019).**

Objectives were to:

- Utilize green waste from local farms and government operations to create appropriate and affordable soil amendments using modern technology,
- Promote better sustainable land management practices,
- Develop a modular system and formalised strategy to consolidate and process all organic waste,
- Enhance agricultural productivity and food security,
- Decrease organic waste from landfills/minimize waste for disposal, and
- Develop compost for local food production, agricultural resilience.

Components:

- Compost, Material Storage, and curing sheds
- In-vessel compost bin
- Wheel loader
- Chipper shredder
- 48 V PV energy system with battery storage.
- Rainwater harvesting system

Mr Isaac noted that this project started working earlier this year and there has been no known update on the implementation thus far. The pilot for the project is Anguilla.

B. Current Initiatives:

1) **Building Resilience in the Eastern Caribbean through Reduction of Marine Litter and Pollution.**

Overall Objective: To contribute to building resilience in marine ecosystems through a reduction in marine litter in the Eastern Caribbean

Timeframe: 3 years

Budget: USD \$3.0 M

Specific Objectives:

- a. Enhance the enabling environment and coordinating mechanism(s) for waste management, including
- b. Harmonise policies and legislation in the OECS
- c. Institute best practices, including coordinating mechanisms
- d. Foster waste reduction / recycling/ diversion / disposal
- e. Create an enabling environment to facilitate new business opportunities.
- f. Develop fiscal and other incentive programs to reduce plastics and Styrofoam use,
- g. Develop an eco-labelling program that promotes use of environmentally friendly packaging,
- h. Develop a strategy to improve the transboundary / transnational movement of plastics and other waste.
- i. Develop and implement community-based interventions that contribute to reducing marine litter.

2) **The NORAD Plastic Waste Free Islands Project.** The OECS Commission through its Environmental Sustainability Cluster is in dialogue with International Union for Conservation of Nature (IUCN) on the NORAD Plastic Waste Free Islands Project in its capacity as a Regional Partner. This project seeks to address the problem of plastic waste leakage from island states. The main

objective is for six SIDS (including 4 OECS member States: Antigua and Barbuda, Dominica, Grenada and Saint Lucia) to make a significant, quantified reduction in plastic waste generation and leakage within the planned project timeframe of three years.

The main project outcomes are:

- a. Improved knowledge of waste generation among target islands and measurable increase in policy effectiveness to reduce plastic waste generation and enhance disposal;
- b. Enhanced adoption of plastic leakage reduction measures by tourism, fisheries and waste management sectors and value chain development; and
- c. Development of Plastic Waste Free Island blueprint.

### 3) The Pilot Recycling Plastic Waste in the OECS (RePlast OECS)

Partner countries: Saint Lucia; Member States of OECS; Martinique

Grant funded by the French Ministry of Foreign Affairs: 828 000 €,

Associate donors: GIZ (German Cooperation); St Lucia National Conservation Trust Fund; Saint Lucia and Martinique private sector (SMA, Massy, SIDREP); ADEME

Implementation operator: UNITE Caribbean (French Antilles based consulting company)

Duration: 24 months

Its aim is to set up an OECS-wide plastic waste collection and recycling system with a pilot phase between Saint Lucia and Martinique.

The project outcomes are as follows:

- a. An end-to-end flow facilitating the collection and management of plastic waste (involving public, private and local stakeholders) in St Lucia.
- b. Used plastic bottles from Saint Lucia are exported to the wider Caribbean for recycling (particularly to the SIDREP Plant in Martinique),
- c. Other territories in the Eastern Caribbean (OECS) are ready to replicate the pilot action undertaken between Saint Lucia and Martinique.

## 8.3 Ms. DONNA SUE SPENCER -UNEP

Ms. Spencer spoke on behalf of her colleague Mr. Christopher Corbin and the Cartagena Convention. She explained that since waste moves, the issue has become a transboundary one. She also noted that there is no SDG that waste management is not relevant to.

Ms. Spencer explained that in February 2017, the UNEP launched the Clean Seas campaign. According to Ms. Spencer, 60 countries have signed worldwide for the campaign and within the Caribbean 9 countries have signed. The UNEP, explains Ms. Spencer, tries to provide leadership and guidance on Clean Seas project.

Ms. Spencer highlighted the commitments coming out of the IGM held earlier in 2019 as follows:

- 1) The development of a new Strategic Plan (2020-2030): to mobilize financial and technical resources for the control, prevention and reduction of marine pollution including solid waste. And also, to support CBP (community based projects) which highlights waste as a resource.
- 2) The Caribbean Node on Marine Litter Management (established in 2016): Associated with this is The Regional Action Plan on Marine Litter Management (RAPMaLi). This plan was prepared by the Caribbean Environment Programme (CEP). ([http://gefcrew.org/carrcu/CEP\\_TR\\_72-en.pdf](http://gefcrew.org/carrcu/CEP_TR_72-en.pdf)) She noted that the GCFI and UN Environment co-host GPML Caribe.
- 3) A commissioned report by the Cartagena Convention looking at the status of styrofoam and plastic bag bans in the wider Caribbean region. This report presents an overview of the various bans. It

classifies the countries based on national ban, local ban, ban announced, ban in discussion (government), ban in discussion (public), and no data. There has been a lot of progress on this front and the case study of Antigua widely known.

- 4) Education and Outreach aspect: There are posters etc. The global partnership for marine litter (CARIBE), since March 2019 have been looking at developing a strategic plan. Part of this aspect is a greater emphasis on upcycling. E.g. Recycling projects done by Edna Manley College for the Visual and Performing Arts, Jamaica where waste was used to create sculptures that were then hung at the Norman Manley International airport, Jamaica. The GPML-Caribe is also concerned about the link between cases of ZIKA and marine debris density and with the microplastics in fish.

Ms. Spencer ended with the Clean Seas Video – Caribbean Breaking Up with Plastics:

<https://www.youtube.com/watch?v=j0FHWQSAP1M&feature=youtu.be>

## 8.4 OPEN FLOOR FEEDBACK

1. Disaster Waste Management: Lessons learnt from islands that have accumulated waste from disasters such as the Bahamas and Dominica, can give direction to other countries who may face the same issue. The UNEP indicated that there was a recent proposal developed to deal with waste management in the Caribbean and potential donors are being sought. Additionally, 'Waste to Work', an NGO which was started after hurricane Erma (St. Maarten), is conducting work on upcycling from construction waste and teaching persons how to make livelihoods from such.
2. Cruise Ship Industry: comment made regarding the OECS review of the World Bank Funded project. This project was initiated by the Florida-Caribbean Cruise Association (FCCA) and an arrival tax introduced of USD\$2 per person that would go into a separate fund to manage the waste system. This cost was set in 1993. However, there were talks of an increase which was not possible. Additionally, it was found that some countries do not use those funds for solid waste management.
3. In looking at waste as raw material, Curacao for example, has employed the use of some waste materials as filling material. This reduces the amount of waste at the landfill. This is only possible however, through proper waste separation and selection.

## 9 REGIONAL WASTE MANAGEMENT STRATEGY AND ACTION PLAN: *FROM AWARENESS TO ACTION* (RESOURCE MOBILIZATION). MODERATOR: MR. WAYNE WILLIAMS.

### 9.1 THE EUROPEAN UNION (EU) DELEGATION: MS. SUSANA FUERTES

Ms. Fuertes indicated that this was the EU's first time participating in the HLF-Waste forum.

She went on to state that the EU has a very recent experience with sustainable consumption and the circular economy. She noted that the change in consumption happens quickly once there is a good communication campaign. The main focus of the campaign, according to Ms. Fuertes, is trying to understand the best ways to convince persons to change their day to day habits. She explained that this can be done by:

- Convincing them that single use plastic use is not sustainable anymore.
- We, the waste professionals, need to be a part of that change and be examples to our families
- Push the political agenda toward that goal

She noted that these changes can take at least 4 years to be put in place and given that it is the HLF-3, hopefully there will be more updates on how the action plan will move forward next year. She hopes that the EU can

help in the implementation process of the CWMAP. She indicated that the EU has €7 million that needs to be allocated during the next year. She welcomed the participants to share the type of support needed as funding is available for supporting the legal framework, education, communication campaigns, piloting etc. Ms. Fuertes is the programme manager for this fund.

## 9.2 MR. OLAV LUNDSTOL: THE NORWEGIAN EMBASSY CUBA.

Mr. Lundstol gave some background on the Norwegian government's approach that is relevant to the CWMAP. In 2017, the Norwegian government prepared a white paper on oceans for development and foreign policy. Mr. Lundstol explained the three pillars of this thinking is that here the emphasis was placed on the connection of knowledge of the environment, sustainable use and economic growth and the need for new thinking regarding renewable and non-renewable resources. The first part constitutes:

- ❑ The International High-Level Panel for Sustainable Oceans launched by the Norwegian Prime Minister. There are high level reports being produced. The role of the panel is to raise attention and status surrounding the functions of the oceans.
- ❑ Ocean Conference in Oslo, Norway: Heads of state and ministers from the Caribbean will be participating.
- ❑ Programmatic: programmes and initiatives with an emphasis on oceans; marine pollution and fisheries. Within this is a global programme on marine pollution launched a year ago with a tentative allocation for 2019-2023 of about USD\$40-45 million per year. At the moment there is a portfolio of projects. Around 40 multilateral organizations get support from this programme. Specifically, in the Caribbean region: plastic free islands by IUCN. At the overall level there is boosting of funding for the Global Environmental Facility (GEF), from which the implementing body such as UNEP benefits from and can formulate new projects such as the Marine Litter and Microplastics Global Project of UNEP specific to Asia, Africa and the SIDS including the Caribbean SIDS as well as a large allocation to ProBlue.

Mr Lundstol explained that the second part of the programme includes knowledge-based programmes. This is a department within NORAD called the knowledge bank responsible for the sharing of experiences on several thematic areas that are relevant internationally, for example, oil for development, fish for development, oceans for development and tax for development.

The third aspect constitutes locally managed initiatives. Here Mr. Lundstol referred to an OECS Project that is upcoming.

Mr Lundstol mentioned other areas that are relevant to waste management:

- a) There are a lot of resolutions related to waste management and the environment in general. There are also ocean conventions e.g. Cartagena.
- b) The role of Cruise Ship: Norway has a huge shipping tradition. With the previously mentioned point on the tourist tax, Mr. Lundstol believes Norway can play a role in the financing aspect.
- c) Project financing issues

Mr. Lundstol mentioned that currently, there is a new Norwegian white paper being developed on climate adaptation and resilience that the embassy in Cuba has made a submission into.

### 9.3 MS. ANDREA GILL: OPERATIONS OFFICER ECONOMIC INFRASTRUCTURE DIVISION OF THE CDB

Ms. Gill opened by stating that there cannot be a sustainable water and wastewater management plan without a solid waste management plan. She reiterated the aims and objectives of the CDB. She noted that there doesn't seem to be a tranche of money that the CDB has tailored to solid waste management but once a concept for waste management fits into the strategic goals of the CDB, a project can be built that would meet the CWMAP's objectives.

Some examples of projects being undertaken by the CDB mentioned by Ms. Gill are as follows:

1. **The OECS Solid Waste Management Project:** This project was approved by the CDB board in 1995.
  - A) Its main objective is the protection of the environment and reduction in risks to public health through improved management of domestic and ship-generated solid wastes.
  - B) Financed by the CDB, The World Bank and the European Union for an estimated total cost of USD\$55 million.
  - C) Components:
    - ☐ Institutional development of Solid Waste Management Entities (SWME);
    - ☐ The provision of facilities for the recycling, management of medical waste and the receipt and management of ship-generated waste;
    - ☐ Procurement of waste management equipment and vehicles;
    - ☐ The closure of existing dumps;
    - ☐ Development of engineered sanitary landfills; and
    - ☐ Associated institutional, project management, design and construction supervision support.
  - D) Lessons Learned:
    - 1) The importance of an integrated approach to solid waste management
      - ☐ Design projects to provide appropriately engineered disposal facilities;
      - ☐ Improve the policy, legal and institutional framework within which the SWM sector operates;
      - ☐ Enhance inter-agency coordination; and
      - ☐ Increase materials recovery and waste reduction.
    - 2) Financing & Cost Recovery are Essential for Sustainability.
      - ☐ Efficient and effective operation of SWM systems requires timely availability of financial resources.
      - ☐ Markets must be identified for materials or byproducts recovered from the waste stream for recycling in order to make the activity economically viable.
      - ☐ A long-term strategy for SWM includes identification of existing and potential markets for these materials.
    - 3) Public Awareness and Education Are Essential in Building Support for Major Changes
      - ☐ To accomplish behavioral change or change within public institutions that are required to achieve project outcomes, public awareness campaigns can produce significant results at relatively low cost.
2. **Integrated Solid Waste Management Project Grenada:** This is the only on-going solid waste project that is on-going at the CDB currently.

Ms. Gill stated that although there is only one solid waste management project currently, the CDB is in discussions for more projects to come on board.



#### 9.4 MS. LLONA DREWRY: HEAD, INTERNATIONAL ENGAGEMENT - OCEAN AND PLASTIC POLLUTION (DEFRA)

Ms. Drewry begun by highlighting the UK's priorities and opportunities. She indicated that in terms of the waste management aspect, the focus is on marine plastics, given the contribution of plastics in the ocean by land-based sources. Ms. Drewry listed some of the domestic actions taken within the UK:

- ❖ World-leading ban on microbeads in rinse-off personal care products
- ❖ 5 pence charge for plastic bags as a result there is a 90% reduction in bags sold at supermarkets
- ❖ Ban on the supply of plastic straws, stirrers and cotton buds will come into force in April 2020
- ❖ Government has set aside £100 million for research and development through the Plastics Innovation Fund, Plastic and Waste Investment Fund and the recently announced Industrial Strategy Challenge Fund to create Smart Sustainable Plastic Packaging

She mentioned that there is a resources and waste strategy for England to work toward more recycling and composting and the elimination of all food waste to landfills **by 2030**.

In terms of international priorities, Ms. Drewry mentioned:

1. The Commonwealth Blue Charter: An agreement signed by all 53 Commonwealth countries to solve ocean related problems and meet commitments for sustainable ocean development through 9 Action Groups working on:
  - a. Aquaculture
  - b. Blue economy
  - c. Coral reef protection and restoration
  - d. Mangrove restoration
  - e. Ocean acidification
  - f. Ocean and climate change
  - g. Ocean observations
  - h. Marine protected areas
  - i. **Marine plastic pollution**
2. The Commonwealth Clean Ocean Alliance (CCOA) There is a committed £10 million to this aspect. It is only open to older eligible CCOA members for official developmental assistance. St. Lucia, Antigua & Barbuda and Belize are part of this.
3. The Commonwealth Litter Programme: £6 million programme working with commonwealth countries at putting together national marine litter action plans. This work is done under 5 themes: action to combat land-based sources, action to combat sea-based sources, removal actions, education and science and outreach. Belize is part of this project.
4. Waste Pilots (DFID): this project is not in the Caribbean. Working in partnership with governments, Coca-Cola, Unilever and local waste collectors to increase the amount of plastic waste collected and reused.

#### 9.5 MS. SUZANNE CHATELIER: FRENCH AGENCY OF DEVELOPMENT (AFD)

Ms. Chatelier gave a background on the AFD. She explained that the AFD has a broad mandate which surrounds people, planet, prosperity, peace and partnerships. She stated that the main financial tool of the AFD is that of grants. She mentioned that in the Atlantic Ocean area focus, they are based in Martinique.





Figure 6

Some of the Solid Waste Management Projects of the AFD mentioned by Ms. Chatelier are as follows:

- 1) Brazil: related to waste recycling and treatment. In this case inputting a collection and recovery system from pig farming residuals. The beneficiary is the Toledo municipality.
- 2) Promoting Integrated Management and economics of solid waste in Senegal. The aim of this is supporting the implementation of the Senegal national waste management strategy in four regions.

Ms. Chatelier indicated that the AFD is keen to support the CWMAP through communication and collaboration, financial tools, providing expertise to set up solid waste management projects and overall to enhance regional collaboration.

## 9.6 MR. GILROY LEWIS: SANITATION SPECIALIST AT THE IDB

Mr. Lewis began by giving some background on the IDB. He explained that the IDB has different arms; the conventional arm which provides financing to governments for infrastructure projects and the IDB Invest which is the private sector arm. He stated that there is also the IDB lab which is the innovation arm of the IDB.

Some of the initiatives of the IDB presented by Mr. Lewis are listed as follows:

- 1) Implementing Sustainable Low and Non-Chemical Development in the SIDS together with the BCRC. IDB is co-financing US\$110 million.  
Examples of types of investments:
  - i. Support hazardous waste management in deconstruction and construction
  - ii. Support compliance with chemical management protocols in construction
  - iii. Develop program on reducing impact of hazardous chemicals from agriculture and other runoff on water quality
  - iv. Develop a sustainable economic cluster to address waste and chemical management in the region
  - v. Develop action plans to reduce waste generated in industries dealing with plastics
- 2) IDB Natural Capital Lab. Funds entrepreneurs working on innovative solutions.
- 3) The Sustainable Island Programme: sustainability through innovative approaches
- 4) Blue Tech Challenge: The IDB Lab, Natural Capital Lab, Sustainable Islands Platform, in alliance with the Compete Caribbean Partnership Facility identified firms and organizations looking to pilot

and scale up business models that use cutting edge technologies to contribute to the sustainable management of oceans, marine ecosystems and coastal resources.

- 5) Alliance of the Pacific/ Plastics Project: targets Chile, Peru, Mexico and Colombia. The idea is to eliminate plastic waste, and keep plastic out of landfills, and oceans, while creating sustainable business and societal value. This is to be scaled up to the Caribbean.

Other IDB SWM Projects funded by the IDB:

- Belize SWMP I, US\$14.9 Million. Completed in 2015/2016
- Belize SWMP II, US\$10 million
- Belize Technical Cooperation, US\$500K for 3Rs and SWM in rural areas.
- Bahamas: US\$1.5 million IDB Lab loan will co-finance the expansion of port reception and treatment facility for MARPOL Annex 5 Waste.
- Haiti - US\$33.5 million grant to help finance an integrated solid waste management program.
- Regional TC for E-waste cradle to grave assessment; feasibility study, design and business plan for dismantling center: T&T, Guyana and Suriname

## 9.7 Ms. JEWEL BATCHASINGH: ACTING DIRECTOR BCRC-CARIBBEAN

The key projects by the BCRC mentioned by Ms. Batchasingh are:

- 1) The GEF 5558 Project. This project is valued at USD\$8million (2016-2020). The project set out to meet obligations under the Stockholm Convention dealing with the update of national implementation plans looking at POPs in the countries. Eight countries were beneficiaries of this project. Some of the project components were as follows:
  - a. Remediation Plan - developed the Guanapo landfill in Trinidad
  - b. Sanitary engineered designs - developed for Suriname
  - c. Medical waste facility for the government of Belize
  - d. Drafted a regional integrated chemicals management act
  - e. Source separation for 5 countries in the region
- 2) Under the crafting of the National Implementation Plan, two projects for the governments of Guyana and Dominica are a part of this. Each project values at USD\$250,000 total of USD\$500,000 for both projects.
- 3) Inventory of e-waste for the government of Guyana, Suriname and Trinidad and Tobago. The project is valued at USD \$250,000 and is focussed on developing a business plan on how to deal with the e-waste.
- 4) BCRC wants to do a project on the use of oil and lead acid batteries. This develops from a project being done in Tobago to treat with the waste oil by undergoing a refinement process.
- 5) Waste pneumatic tyres - looking at trying to develop mechanisms in asphalt applications.
- 6) The Minamata Convention is the only multilateral environmental agreement developed in 2017. Inventory of mercury sources and legislation has been done in 9 Caribbean countries.
- 7) Guyana National Action Plan. Valued at USD\$500,000 specific to the issues of artisanal, small scale gold mining.
- 8) GEF ISLANDS – Implementing Sustainable low and non-chemical development in SIDS. This project is global at a total value of USD\$56 million which covers the Pacific and Indian Oceans and Caribbean region (USD\$21 million). The BCRC is executing the Caribbean part which currently involves 9 countries. The project has 4 components: waste legislation, customs training, obsolete pesticides (DDT's etc.), and trying to discuss extended producer responsibility and circular economy

approaches. Part of this project is also answering the question of whether a country wants to take another countries waste.

## 9.8 RECOMMENDATIONS FROM HLF-3 AND THE WAY FORWARD: MR. RONALD ROACH

Mr. Roach ended the two-day discussion by looking at what has been accomplished in relation to the 8 priority areas identified in HLF-2. Table 1 identifies of new issues/priorities and possible projects

*Table 1: Summary of the Way Forward*

<b>New Issues / Priorities</b>	<b>Improve Strategic Planning for Waste Management and Prevention</b>	<i>Belize</i> Marine Litter Program
		<i>St. Lucia</i> Hotel Waste Reduction Program
		<i>Trinidad and Tobago</i> Recycling Policy Adopted Deposit Refund System for Beverage Containers Policy Adopted
		National Standards Mirror Committee for Circular Economy Approaches
	<b>Improve Management of Waste Infrastructure</b>	Belize; Solid Waste Disposal Site and Transfer Station System; IDB/GOB
		Tobago; Waste Oil Recovery Project; BCRC/Green Fund Project
		Trinidad; New MSW Landfill Design Phase: CDB/GORTT
		Guyana; Haags Bosch Landfill Site Operations Phase
		New Landfill Site in Suriname: BCRC/GEF 5558
		New Landfill Site in Grenada: CDB
	<b>Reduce pollution from waste generation</b>	Multiple Countries
		Single Use Plastic Bans
		Shredders: A&B, St. Lucia, Trinidad
		St. Lucia
		Reduction in Hotel Waste
		Tobago
		Single-Use-Plastic Free Communities
		Castara, Charlotteville
		Trinidad
		Icare

		New Fire Festival
	<b>Divert resources from landfill sites and improve recycling and resource recovery</b>	Already a number of regional approaches:
		Ace Recycling, Trinidad
		Carib Glass, Trinidad
		BTM Recycling, Trinidad
		B's Recycling, Barbados
		Improved Recycling in member countries
		St. Eustatius
		Trinidad
		Guyana
	<b>Strengthen Partnerships</b>	Belize: PPP for Landfill and Transfer Station, Operation Phase
		Trinidad: Proposed PPP for WTE, Tender Evaluation Stage
		Trinidad: Proposed PPP for Recycling Facilities Negotiation Stage
		Replast Pilot Recycling Plastic Waste in the OECS
		Martinique, St. Lucia Partnership
		Norad Plastic Waste Free Islands Project
		Support provided by CDB in enhancing PPP Capabilities
	<b>Identify Sustainable Financing Mechanisms</b>	Removal of import duties on biodegradable products in Antigua and Barbuda and Trinidad and Tobago
	<b>Upscale Outreach and Communication Efforts</b>	Increased from 30 participants in HLF2 2018 to 48 participants in HLF3 2019
		Participation by the French Territories
		Increased Partners/Donors
		Caribbean Solid Waste Managers WhatsApp Group Established
		CWWA Waste Newsletter to be launched in November
		Communications Training Program to take place as part of HLF3
	<b>Improve Capacity to manage special wastes</b>	BCRC/GEF Funded Projects
		BCRC/GEF Elimination of POPs
		BCRC/GEF ISLANDS Project
		1) Legal Component
		2) Obsolete Pesticides
		3) Extended Producer Responsibility
		4) Knowledge Management
	<b>New Issues Identified</b>	Sargassum: Regional Approach Required
		Plastics: Fishing Gear
<b>Possible Projects</b>	Data	Develop Baseline Information Survey
		Regional Project for development of a common data management and reporting system
	Analysis	Development of Templates for Feasibility Assessments of WTE
	Operations	Sargassum

		Used Tyres
	Communications	Development of a Social Media Site for sharing and promoting waste management messages
<b>Donors</b>	EU Delegation	Experience in Circular Economy
		Good Communication Campaign is Necessary
		7 Million Euros to be utilized within 1 Year
	Norway	International HighLevel Panel for Sustainable Ocean
		Our Ocean Conference, Oslo October 2019
		40-45 Million US Dollars through multinational agencies and international NGOs
		Knowledge Programs: Fish for Development, Oceans for Development
		Play a role in tourist tax for the cruise industry
	CDB	Current Project in Grenada New Landfill Development
		Working with TT Gov't for New Landfill Design Phase
	DEFRA	The Commonwealth Blue Charter
		Marine Plastic Pollution CCOA
		A&B, Belize, Barbados, St. Lucia, TT
	AFD	Focus on Africa, Asia, Free Oceans, LAC
		Funding, Technical Expertise
	IDB	GEF ISLANDS Project: US\$100 Million
		Blue Tech Challenge
	BCRC	Serve 14 Countries
		E-Waste Guyana, Suriname and Trinidad and Tobago

<b>New Issues / Priorities</b>	<b>Improve Strategic Planning for Waste Management and Prevention</b>	Belize
		Marine Litter Program
		St. Lucia
		Hotel Waste Reduction Program
		Trinidad and Tobago
		Recycling Policy Adopted
		Deposit Refund System for Beverage Containers Policy Adopted
		National Standards Mirror Committee for Circular Economy Approaches
	<b>Improve Management of Waste Infrastructure.</b>	Belize; Solid Waste Disposal Site and Transfer Station System; IDB/GOB
		Tobago; Waste Oil Recovery Project; BCRC/Green Fund Project
		Trinidad; New MSW Landfill Design Phase: CDB/GORTT
		Guyana; Haags Bosch Landfill Site Operations Phase
		New Landfill Site in Suriname: BCRC/GEF 5558
		New Landfill Site in Grenada: CDB
	<b>Reduce pollution from</b>	Multiple Countries
		Single Use Plastic Bans

	<b>waste generation.</b>	Shredders: A&B, St. Lucia, Trinidad
		St. Lucia
		Reduction in Hotel Waste
		Tobago
		Single-Use-Plastic Free Communities
		Castara, Charlotteville
		Trinidad
		Icare
		New Fire Festival
	<b>Divert resources from landfill sites and improve recycling and resource recovery.</b>	Already a number of regional approaches:
		Ace Recycling, Trinidad
		Carib Glass, Trinidad
		BTM Recycling, Trinidad
		B's Recycling, Barbados
		Improved Recycling in member countries
		St. Eustatius
		Trinidad
		Guyana
	<b>Strengthen Partnerships</b>	Belize: PPP for Landfill and Transfer Station, Operation Phase
		Trinidad: Proposed PPP for WTE, Tender Evaluation Stage
		Trinidad: Proposed PPP for Recycling Facilities Negotiation Stage
		Replast Pilot Recycling Plastic Waste in the OECS
		Martinique, St. Lucia Partnership
		Norad Plastic Waste Free Islands Project
		Support provided by CDB in enhancing PPP Capabilities
	<b>Identify Sustainable Financing Mechanisms</b>	Removal of import duties on biodegradable products in Antigua and Barbuda and Trinidad and Tobago
	<b>Upscale Outreach and Communication Efforts</b>	Increased from 30 participants in HLF2 2018 to 48 participants in HLF3 2019
		Participation by the French Territories
		Increased Partners/Donors
		Caribbean Solid Waste Managers WhatsApp Group Established
		CWWA Waste Newsletter to be launched in November
		Communications Training Program to take place as part of HLF3
	<b>Improve Capacity to</b>	BCRC/GEF Funded Projects
		BCRC/GEF Elimination of POPs



	<b>manage special wastes</b>	BCRC/GEF ISLANDS Project
		1) Legal Component
		2) Obsolete Pesticides
		3) Extended Producer Responsibility
		4) Knowledge Management
	<b>New Issues Identified</b>	Sargassum: Regional Approach Required
		Plastics: Fishing Gear
<b>Possible Projects</b>	Data	Develop Baseline Information Survey Regional Project for development of a common data management and reporting system
	Analysis	Development of Templates for Feasibility Assessments of WTE
	Operations	Sargassum Used Tyres
	Communications	Development of a Social Media Site for sharing and promoting waste management messages
<b>Donors</b>	EU Delegation	Experience in Circular Economy
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	AFD	Focus on Africa, Asia, Free Oceans, LAC Funding, Technical Expertise
	IDB	GEF ISLANDS Project: US\$100 Million Blue Tech Challenge
	BCRC	Serve 14 Countries E-Waste Guyana, Suriname and Trinidad and Tobago

Closing remarks were made by Mr. Vincent Sweeney, Mr. Arthur Eijs and Ms. Sara-Jade Govia

## Appendix A: List of Participants

Country	Name	Agency	Email Address
Bahamas	Adrian Gibson	Water and Sewerage Corporation	ajbahama@hotmail.com
Barbados	Adrianus Vlugman	PAHO	vlugmana@paho.org
Anguilla	Aisha Andrew	Ministry of Social Development	aisha.andrewin@gov.ai
Grenada	Allison Neptune	Grenada Solid Waste Management Authority	aneptune@gswma.com
Barbados	Carol Andrea Gill	Caribbean Development Bank	gillcar@caribank.org
St. Eustatius	Anthony Reid	Ministry Economy, Nature and Infrastructure	director.e.i@statiagov.com
The Netherlands	Arthur Eijs	Ministry of Infrastructure and Water Management	arthur.eijs@minienm.nl
Curacao	Ciaretta Profas	Ministry of Health, Environment and Nature	ciarettaprofas@gobiernu.cw
St. Maarten	Claudius Buncamper	Ministry of Public Housing, Spatial Planning, Environment and Infrastructure	claudius.buncamper@sintmaartengiv.org
St. Lucia	Cornelius Isaac	Organisation of Eastern Caribbean States	cornelius.isaac@oecs.int
United States of America	Craig Kullmann	World Bank	ckullmann@worldbank.org
Jamaica	Deonne Smith Anderson	United Nations Environment Programme	deonne.smith@un.org
Turks and Caicos	Desiree Lewis	Ministry of Health, Agriculture, Sport and Human Services	dlewis@gov.tc
Barbados	Didier Trebucq	United Nations	dider.trebucq@one.un.org
Bonaire	Diego Marquez	Public Entity Bonaire	diego.marquez@bonaigov.com

Country	Name	Agency	Email Address
Jamaica	Donna Sue Spencer	United Nations Environment Programme	donna.spencer@un.org
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St. Kitts	Hon. Eugene Hamilton	Ministry of Health	ministerofagriculture50@gmail.com
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Curacao	Gabriel Murray	Ministry of Health	murray.gabriel@gmail.com
Trinidad and Tobago	Gilroy Lewis	Inter-American Development Bank	gilroyl@iadb.org
St. Kitts	Ivor Phillip	Solid Waste Management Corporation	kphillip@stkittsswmc.com
Jamaica	Jan Betlem	United Nations Environment Programme	jan.betlem@un.org
Trinidad and Tobago	Jewel Batchasingh	BCRC Caribbean	jewel.batchasingh@bcrc-caribbean.org
Panama	Jordi Pon	UN Environment – Latin America and the Caribbean Office	jordi.pon@un.org
St. Lucia	Justin Sealy	Sustainable Development Department	gm@sluswma.org
Guyana	Kareem Sabir	CARICOM Secretariat	kareem.sabir@caricom.org
Curacao	Kenneth Hooten	EkoEkonomiko NV/FSIP	kohooten@gmail.com
Turks and Caicos	Kenrick Neely	Ministry of Health, Agriculture, Sports and Human Services	kkneely@gov.tc
Trinidad and Tobago	Kevin Mitchell	Solid Waste Management Company Limited	kmitchell@swmcol.co.tt
St. Maarten	Lia Dania	Ministry of Public Housing, Spatial Planning, Environment and Infrastructure	lia.dania@sintmaartengov.org

Country	Name	Agency	Email Address
United Kingdom	Ilona Drewry	Department for Environment, Food and Rural Affairs	ilona.drewry@defra.gov.uk
Belize	Lumen Cayetano	Belize Solid Waste Management Authority	seniortech@solidwaste.gov.bz
St. Maarten	Mark Williams	Ministry of Public Housing, Spatial Planning, Environment and Infrastructure	mark.williams@sintmaartengov.org
Aruba	Michael Raymond	Serlimar Waste Management Company	michael.raymond@serlimar.com
Jamaica	Nicole Caesar	GEF-IWEco	nicole.caesar@un.org
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Martinique	Philippe Comlan	Agglomeration of Southern Martinique	philippe.comlan@espacesud.fr
Nevis	PS. Shelisa Martin-Clarke	Ministry of Health	shelisa.martinclarke@niagov.com
Martinique	Regine Sainte-Croix	Reliable Solutions Caribbean	rsc@rscaribbean.com
Guyana	Richard Van West-Charles	Guyana Water Inc.	richardvwc@gwi.gy
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Israel	Shmuel Brenner	Y.A. MAOF Israel	shmuel_4212@gmail.com
Barbados	Susana Fuertes	European Union Delegation	susana.fuertes@eeas.europa.eu
Martinique	Suzanne Chatelier	French Agency of Development	chateliers@afd.fr
Jamaica	Vincent Sweeney	UNEP Caribbean SRO	vincent.sweeney@unep.org
St. Vincent and the Grenadines	Winsbert Quow	Central Water and Sewerage Authority	wquow@cwsasvg.com
Trinidad and Tobago	Wayne O. Williams	CWWA – Executive Director	wwilliams@cwwa.net

## APPENDIX B: HLF-3 AGENDA

3<sup>rd</sup>High Level Forum on Waste Management:  
*From Awareness to Action*

16<sup>th</sup>to 17<sup>th</sup>October 2019  
Marriott Resort and Royal Beach Casino,  
Frigate Bay, St. Kitts & Nevis

Wednesday 16 <sup>th</sup> October	Agenda Items	Annotations	Comments
8.15am to 9.00 am	HLF Registration		Conference Secretariat
9.00 am to 9.15 am	Opening Ceremony of Waste Management HLF	Remarks by CWWA President, Mark Bennett, UN (Didier Trebucq, RCO), Dutch Government (Arthur Eijs) Address by Minister Eugene Hamilton, St. Kitts/Nevis	Chair - CWWA Executive Director, Wayne Williams
9.15 am to 9.30 am	Introduction of Participants		CWWA – Ronald Roach
9.30 am to 9.45 am	Review of Agenda		CWWA – Ronald Roach
9.45 am to 10.00 am	Background and Context of the HLF for Waste Management/ Objectives of Meeting		Vincent Sweeney, UNEP

Wednesday 16 <sup>th</sup> October	Agenda Items	Annotations	Comments
10.00 am to 10.45 am	Overview of Key Solid Waste Management Issues Facing the Caribbean, incl. costing of operations; common approaches (s.a. recycling); special/e-waste; disaster waste; capacity development		UNEP (Jordi Pon); CWWA (Ronald Roach); Martinique (Philippe Comlan)  Moderator: Vincent Sweeney, UNEP
10.45 am to 11.15 am	Refreshment Break		Exhibit Hall
11.15am to 12.15 pm	Panel discussion on Emerging Waste Management Issues – <i>Plastic Waste: Assessing Results</i> (bans; micro-plastics etc.)	Country Representatives & Partners	Antigua/Barbuda; Lumen Cayetano, Belize; Craig Kullmann, World Bank Moderator: Jewel Batchasingh, BCRC
12.15 pm to 1.30pm	Lunch and Tour of Exhibition		
1.30 pm to 2.30 pm	Panel discussion on Emerging Waste Management Issues - <i>Sargassum: collection, recycling and reuse - Case Studies</i>	Scientists and Country Representatives	Philippe Comlan, (Martinique); Frederik N. Brouwer (Curacao); Ellik Adler (Israel) Moderator: Dr. Shelly-Ann Cox, UWI/CERMES



Wednesday 16 <sup>th</sup> October	Agenda Items	Annotations	Comments
2.30 pm to 3.30 pm	Waste Management and the Tourism Sector (including on-going public-private cooperation initiatives)		UNEP (Deonne Smith Anderson/V. Sweeney); Justin Sealy, St. Lucia
3.30pm to 3.45 pm	Refreshment Break		
3.45 pm to 4.15 pm	Opportunities for Training & Development of Waste Practitioners	Highlight the capacity building efforts in the region	Jordi Pon, UNEP
4.15 pm to 5.00 pm	Waste Management: The International Agenda & implications for the Caribbean (e.g. elimination of landfilling)	Outcomes from UN Environment Assembly, LAC Forum of Ministers, Cartagena Convention IGM and OECS COMES	Jordi Pon, UNEP; Cornelius Isaac, OECS; Donna Spencer, UNEP/CEP/IWECO  Moderator: Arthur Eijs
5.00 pm	Close of day		

Thursday 17 <sup>th</sup> October	Agenda Item	Annotations	Comment
9.00am to 9.15am	Synthesis of Previous Day		CWWA – Ronald Roach
9.15am to 11.00am	Regional Waste Management Strategy and Action Plan: <i>From Awareness to Action</i> (Resource mobilization)	Donors invited to share their agendas and identify opportunities for partnership	EU; Norwegian Embassy; Dutch government; IDB; CDB; French (AFD); UK (DEFRA); GEF (BCRC) Moderator: CWWA (Wayne Williams)
11.00am to 11.15 am	Refreshment Break		
11.15am to 12.00pm	Recommendations from HLF and Way Forward		UNEP/CWWA
12.00pm to 12.15pm	WRAP UP OF HLF		Partners
12.15pm to 1.15pm	Lunch		

Thursday 17 <sup>th</sup> October	Agenda Items	Annotations	Comments
1.15 to 5.00 pm	Effective Communication Strategy Development and Implementation	This Workshop will be for country representatives responsible for outreach in respective waste management authorities. Those persons will be advised	

## APPENDIX C: SUMMARY OF DAY 1

### Opening Ceremony

Opening Remarks by CWWA President: Mark Barnett

- Waste as a Resource

- Urgent Need to Kickstart Projects regional projects

Greeting from UN Resident Representative, Didier Trebucq

- Nature is Angry

- Momentum and Efforts of the Caribbean have not gone un-noticed

Remarks from Policy Advisor, Ministry of Infrastructure and Environment, Kingdom of the Netherlands

- HLF on Waste has matured and has filled a gap in information sharing and networking

- There is a need to learn from other regions

### Background and Context for HLF3 Vincent Sweeney, UNEP

Issues have been identified but the challenge has been implementation.

History of UNEP's and CWWA's involvement in HLF highlighted stemming from meeting in Curacao in 2016

Caribbean Waste Action Plan Draft was developed in 2017 and updated in 2018.

Reminder that it is not a static document

### Opening Ceremony, Con't

Feature Address by Hon. Eugene Hamilton

- Waste is expected to increase by 25% by 2050

- Not enough attention being paid to the issue

- Increased Prosperity has led to increased waste

- Effects of tourism are real

- Private Sector has a role to play

- Financing has been a major issue

- Pragmatic solutions are required

### Background and Context for HLF3 Vincent Sweeney, UNEP

- Raise further awareness on the Caribbean SIDS Waste Action Plan and **mobilise support**

- Move from *awareness* to *action*

- Highlight emerging issues

- Respond to regional/global agendas

## Panel Discussion: Key Issues

Overview of Key Solid Waste Management Issues Facing the Caribbean, incl. costing of operations; common approaches (s.a. recycling); special/e-waste; disaster waste; capacity development

### Presenters

Jordi Pon, UNEP

Ronald Roach, CWWA

Philippe Comlan, Martinique

### Moderator

Vincent Sweeney, UNEP

## Panel Discussion: Emerging Issues: Plastic Waste

Panel discussion on Emerging Waste Management Issues – **Plastic Waste**: Assessing Results (bans; micro-plastics etc.)

Emmanuel Dubois, Antigua/Barbuda

Lumen Cayetano, Belize;

Craig Kullmann, World Bank

Moderator: Jewel Batchasingh, BCRC

## Key Issues: KEY POINTS

Jordi Pon: SIDS Waste Management Outlook

7.8% Recycling Rate for LAC

Hub and Spoke System for Recycling

Ronald Roach: Practical Challenges and Common Approaches/Solutions

Database and Templates

Operational Approaches and Public Education Campaigns

Phillipe Comlan: Success Stories In Martinique

3-Bin System for waste separation

Average cost/person. = 193,69€ , Average cost of one ton = 384,36€

## Emerging Issues Plastic Waste Key Points

Craig Kullman, World Bank, Marine Pollution in the Caribbean

Complex Problem

80% is land based

Multi-Donor Trust Fund: Pro-Blue

Marine Litter Project in Belize

Belize Blue Resistant and Strong

Lead the Way in Tackling Marine Pollution

Multi-Stakeholder Approach adopted

Plastic Bag and Styrofoam Ban in Antigua and Barbuda

Success Story Highlighted

Public Support

High Level Driven

## Panel Discussion: Emerging Issues, Sargassum

Panel discussion on Emerging Waste Management Issues - ***Sargassum: collection, recycling and reuse – Case Studies***

Philippe Comlan, (Martinique)  
Frederik N. Brouwer (Curacao)  
Ellik Adler (Israel)  
Moderator: Dr. Shelly-Ann Cox,  
UWI/CERMES

## Sargassum Key Points Continued

Kenneth and Frederick, Curacao, Time to Act  
Inspired by Outcomes of HLF2

Regional Approach is necessary

Fire Station Approach Recommended

Agreement is required on "Hubs"

Fermentation, Biocracking are possible uses

Ellik Adler, Israel, MAOF Company

Algae to Energy

Low calorific value...must be mixed with other organics

Pilot Project to begin in DR for use in biomass system

## Sargassum: Key Points

CERMES, Sargassum, Collection and Reuse

Sargassum is here to stay

Do's and Don'ts

Uses for and challenges of Sargassum

Phillipe Colman, Martinique Experience

Sargassum is collected within 48 hours

Since 2016 more that 5M Euros spend on research

Work in Progress

## Waste Management and the Tourism Sector

Waste Management and the Tourism  
Sector (including on-going public-private  
cooperation initiatives)

Presenters

Deonne Smith Anderson, UNEP

V. Sweeney, UNEP

Justin Sealy, St. Lucia

Moderator

Marlon Daniels, CWWA



## Waste Management and the Tourism Sector: Key Points

### Vincent Sweeney: Waste Management and the Tourism Sector

- Tourism footprint is high, compared to island residents
- Visitor is interested in healthy beach, clean water, Annual loss of US\$622 Mill
- Action Plan was launched in St. Lucia and hotels have already begun replacing some single use plastics

### Deonne Smith-Anderson: Campaigns and Outreach

- Clean Seas Valentines Video
- 7 Strategies: 3R's, Work hand in hand with suppliers, strengthen your alliances, buy in bulk, involve all hotel staff, invite guests to partner, support global movements

### Justin Sealy: Waste Management and the Tourism Sector

- 88% of Hotels replaced single use plastics
- Total Hotel waste received at the landfill was 5527 tonnes

## Opportunities for Training and Development

### Opportunities for Training & Development of Waste Practitioners

#### Presenters:

- Jordi Pon, UNEP
- Jewel Batchasingh, BCRC Caribbean

## Opportunities for Training and Development Key Points

### Jordi Pon, Opportunities for Training and Development of Waste Practitioners

- The Importance of Training
- University Consortium: 8 Universities from 7 Countries
- University of the West Indies, University of Technology, Jamaica
- Development of a Post Graduate Program on Sustainable Waste Management for LAC
- Proposed Short Course 13-17 January, 30 participants, including 8-10 sponsored.

### Jewel Batchasingh

- Role of BCRC in training and technology transfer
- Referenced GEF Elimination of POP's Project
- Each project component comprises a training element